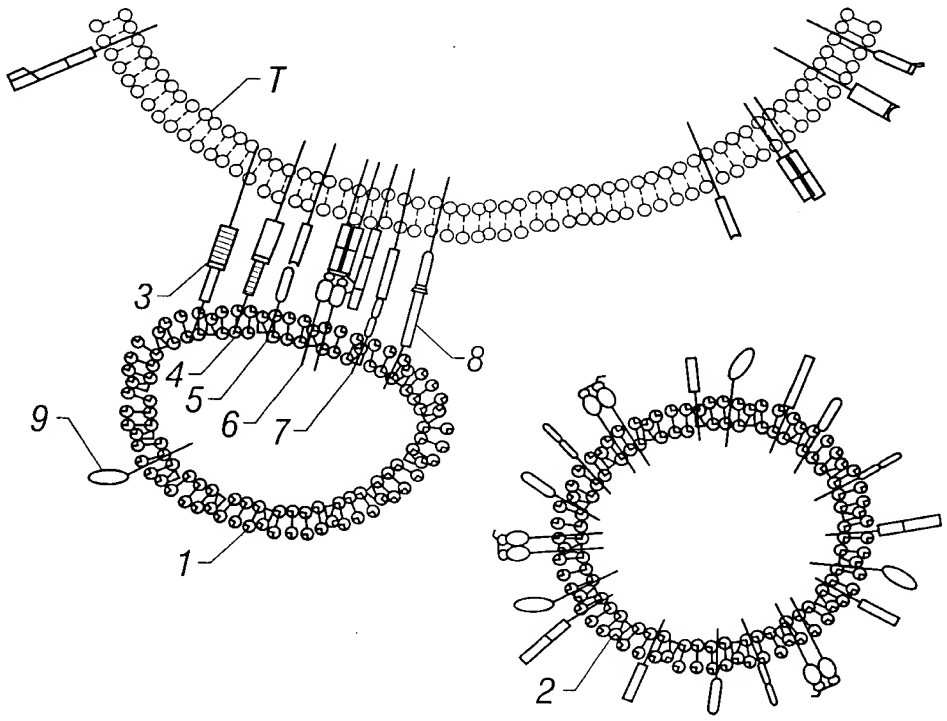


FIG. 1

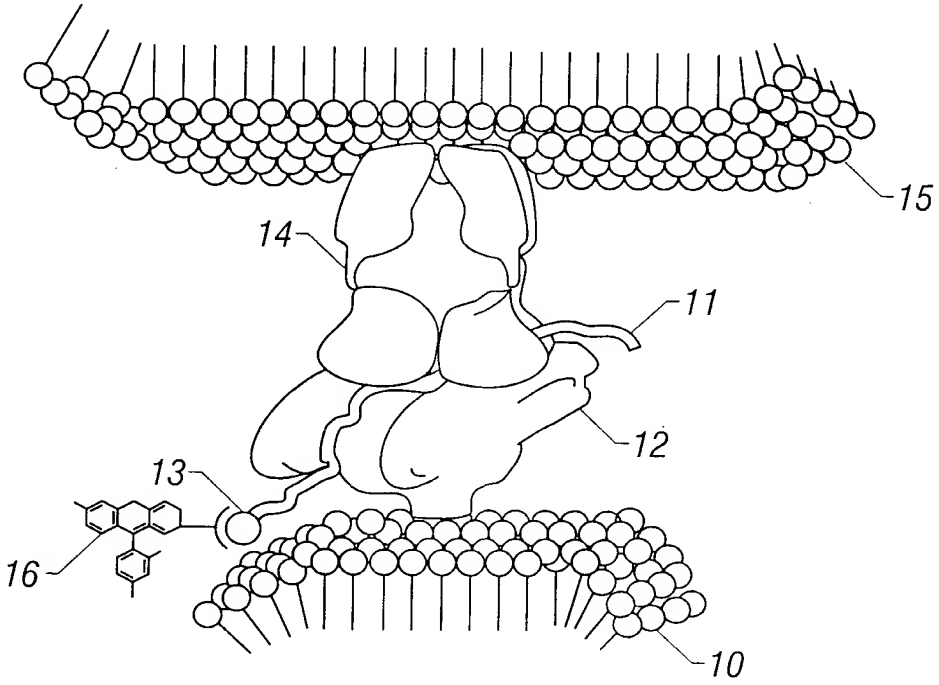


FIG. 2

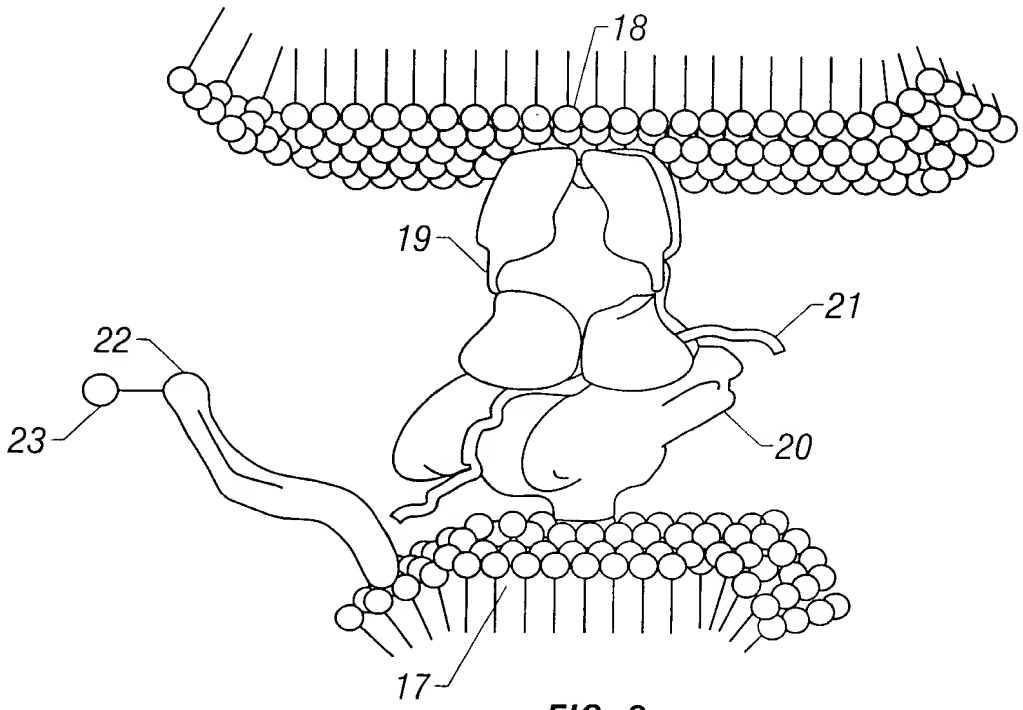


FIG. 3

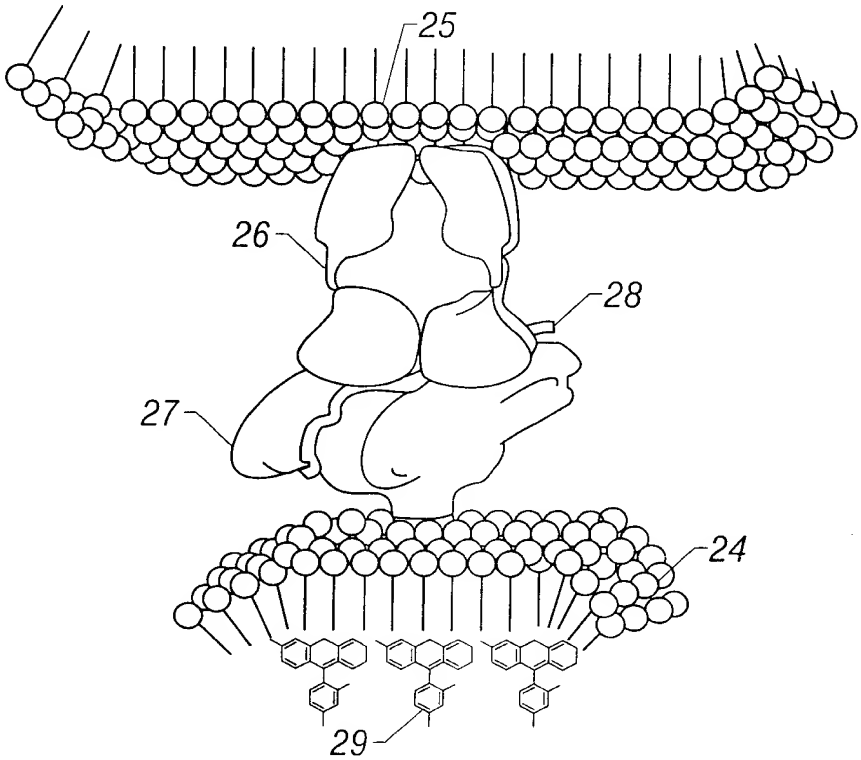


FIG. 4

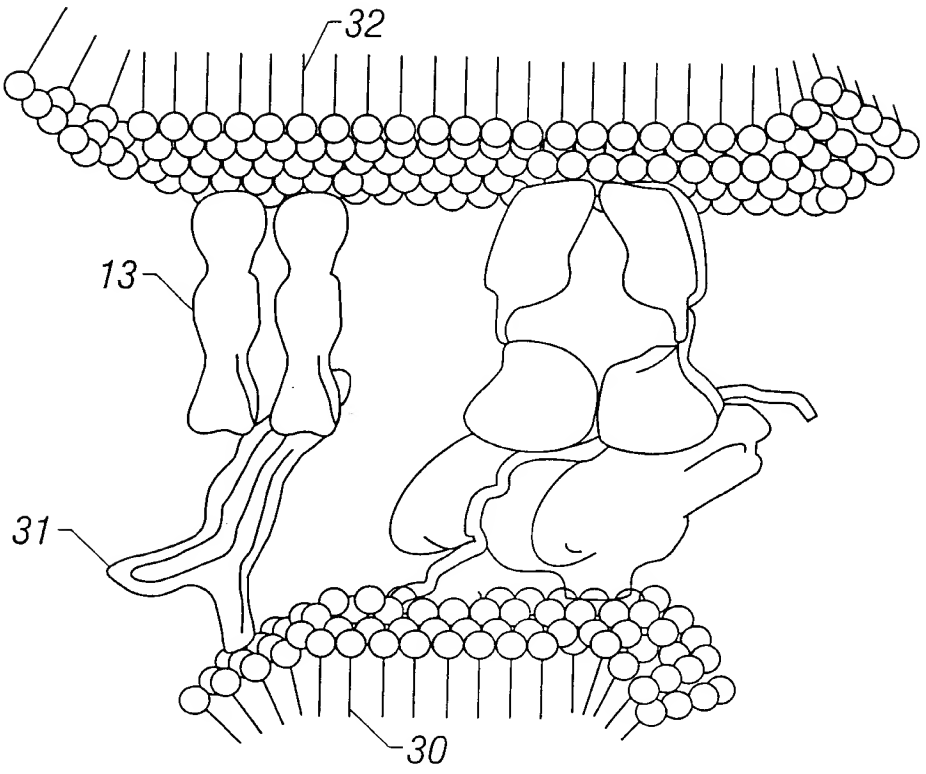


FIG. 5

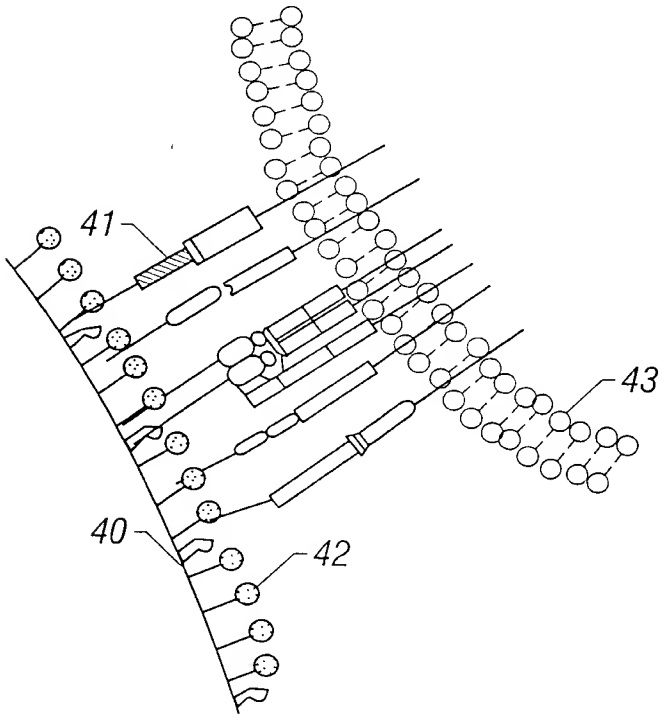


FIG. 7A

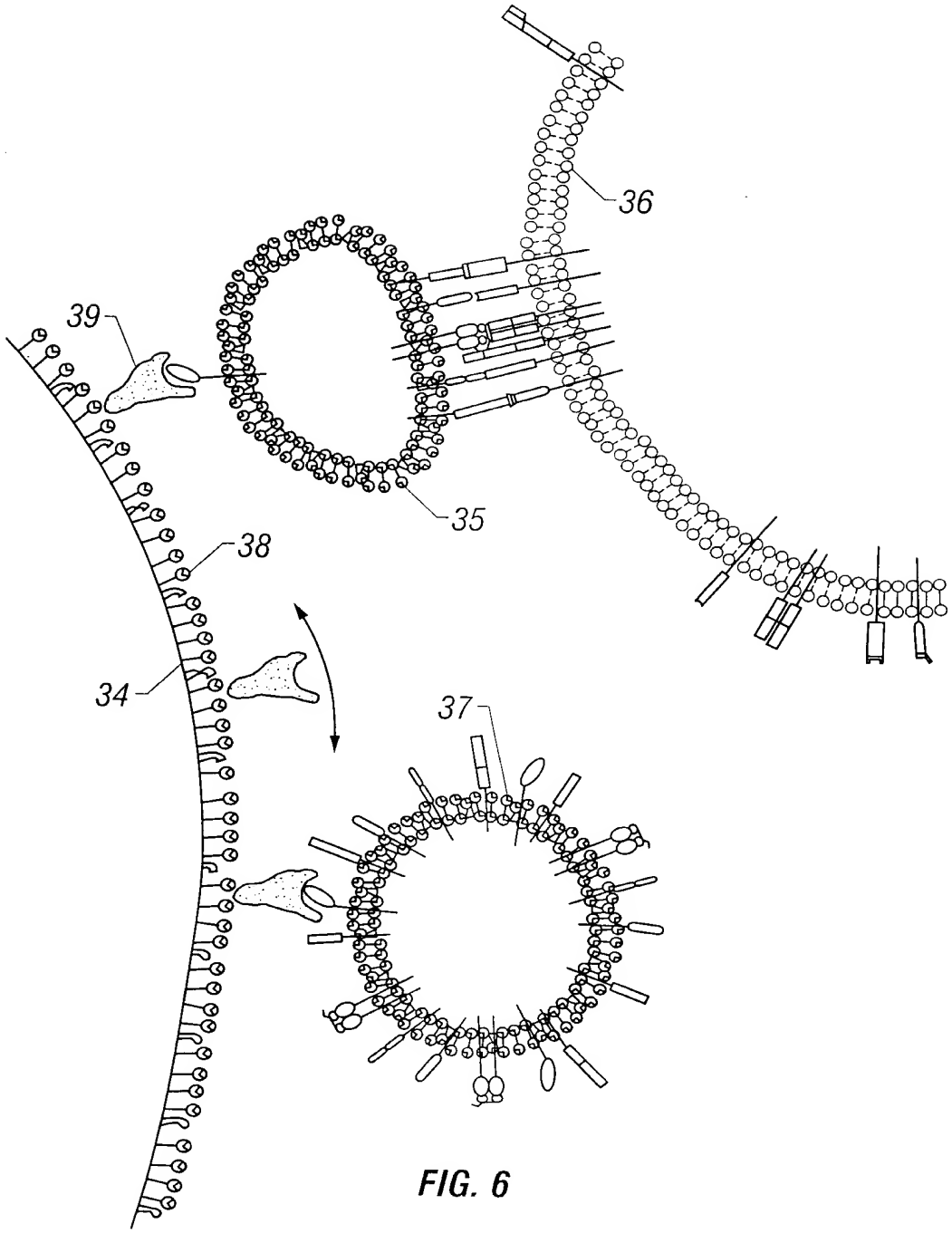


FIG. 6

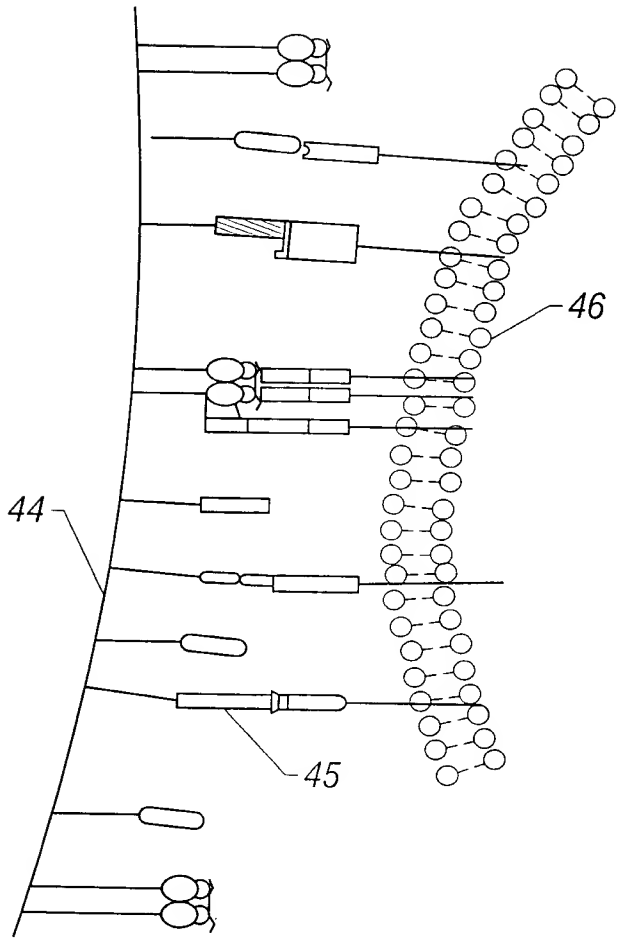


FIG. 7B

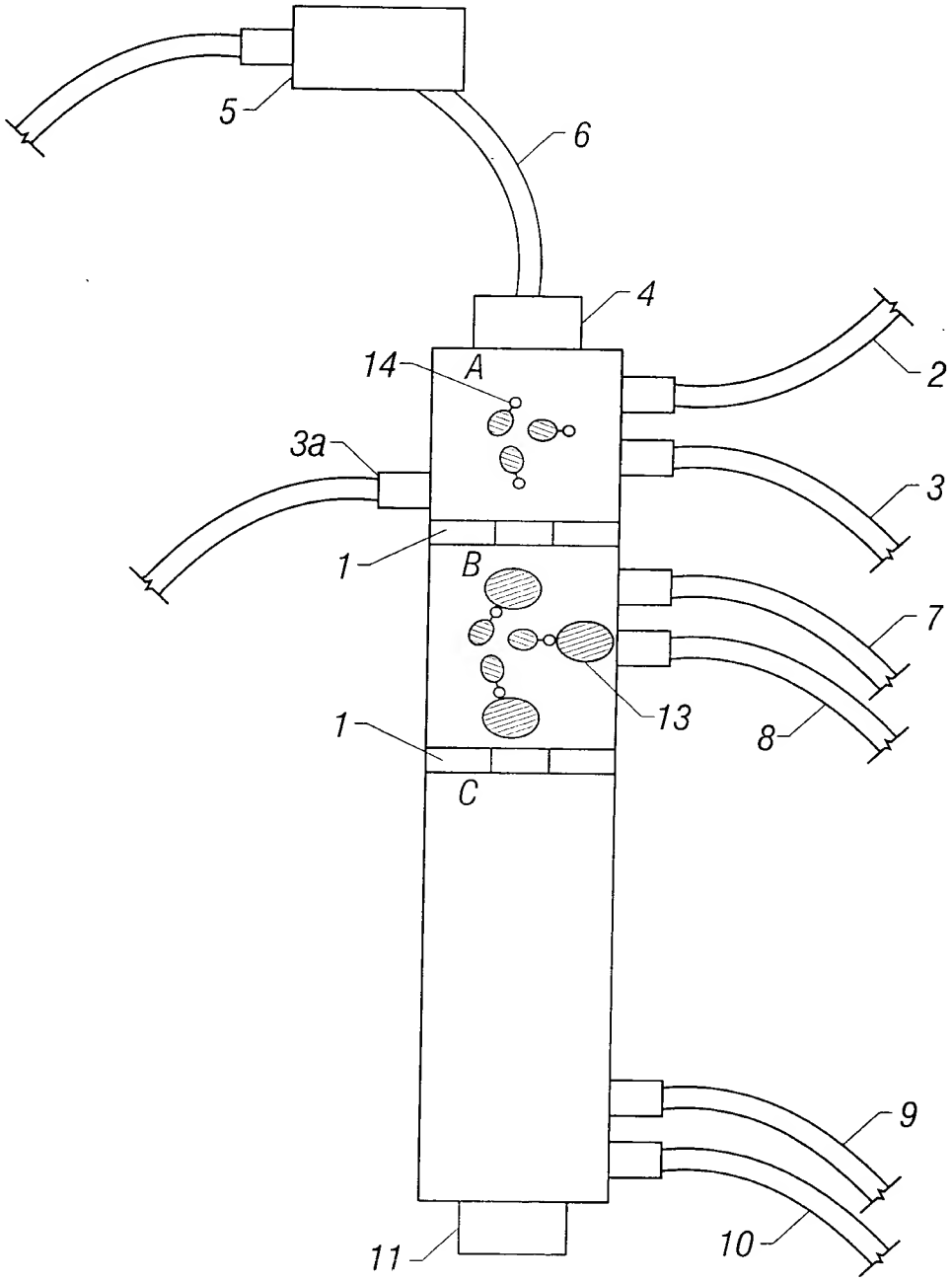


FIG. 8

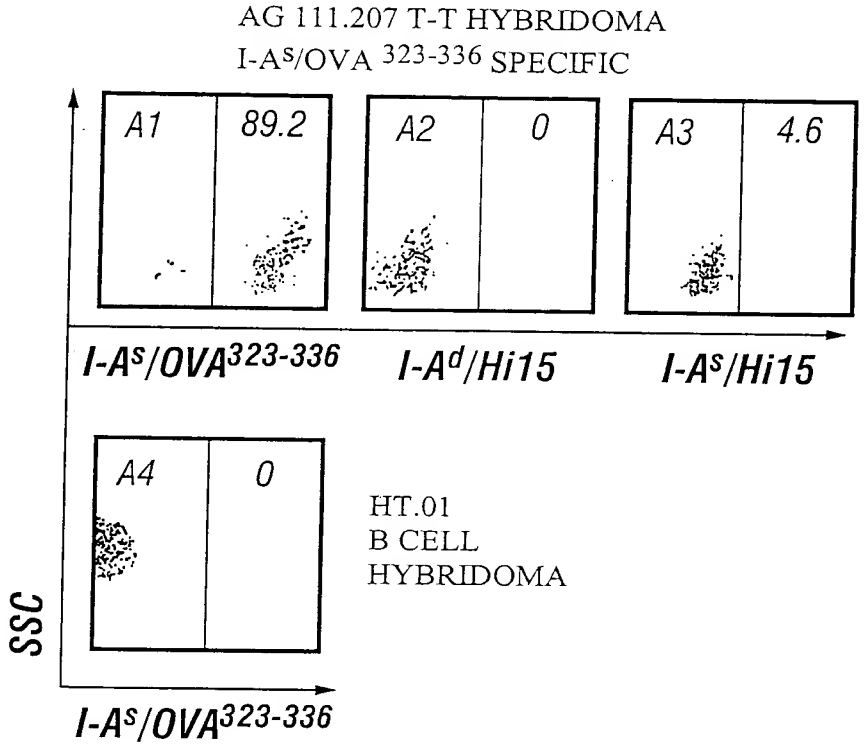

AG 111.207 T-T HYBRIDOMA
I-A^s/OVA $^{323-336}$ SPECIFIC
A1
89.2
A2
0
A3
4.6
I-A^s/OVA$^{323-336}$
I-A^d/Hi15
I-A^s/Hi15
A4
0
HT.01
B CELL
HYBRIDOMA
SSC
I-A^s/OVA$^{323-336}$

FIG. 9A

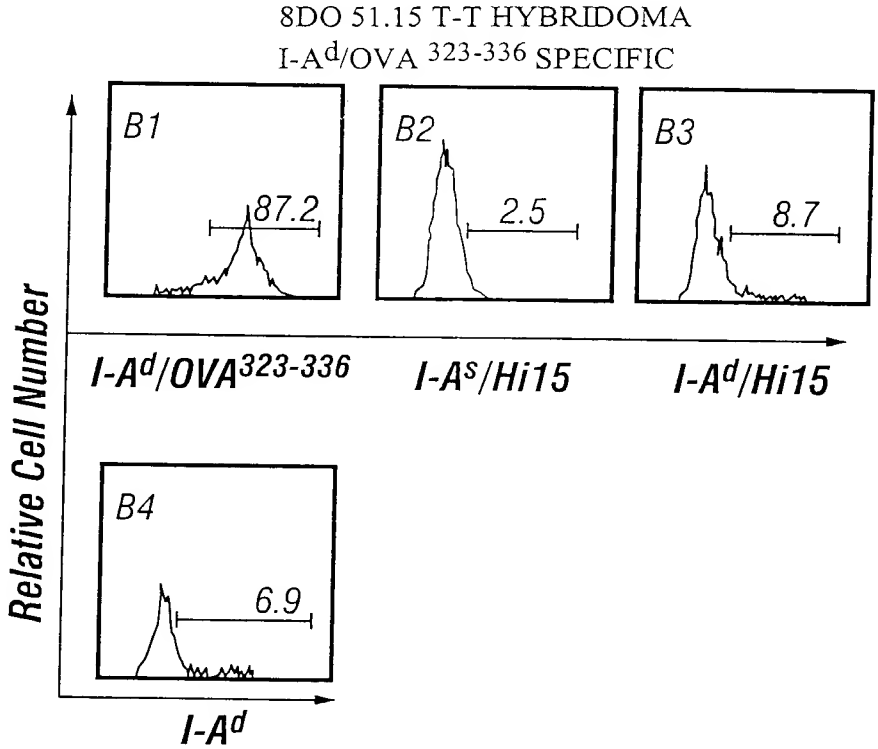

8DO 51.15 T-T HYBRIDOMA
I-A^d/OVA $^{323-336}$ SPECIFIC
B1
87.2
B2
2.5
B3
8.7
I-A^d/OVA$^{323-336}$
I-A^s/Hi15
I-A^d/Hi15
B4
6.9
Relative Cell Number
I-A^d

FIG. 9B

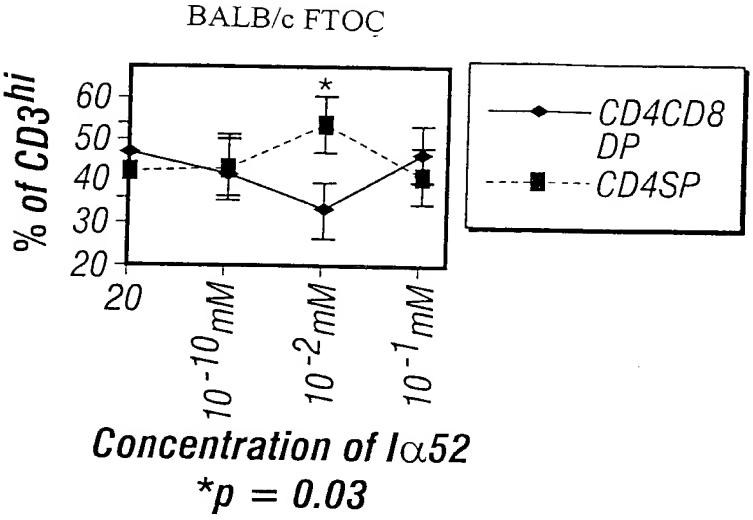


FIG. 10A

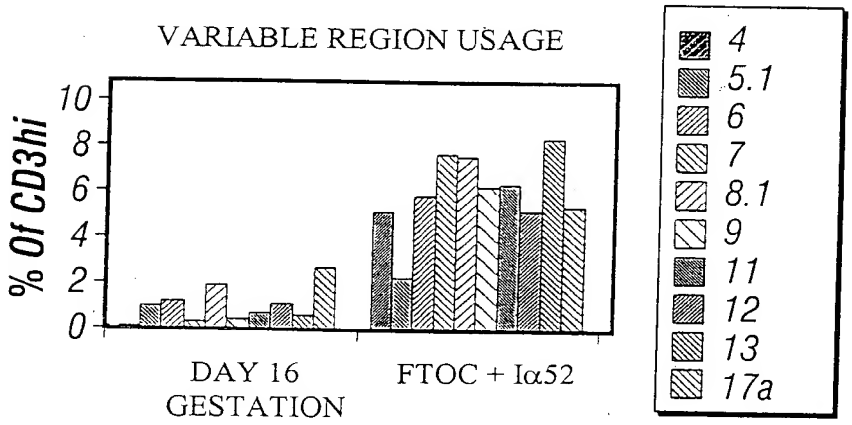


FIG. 10B

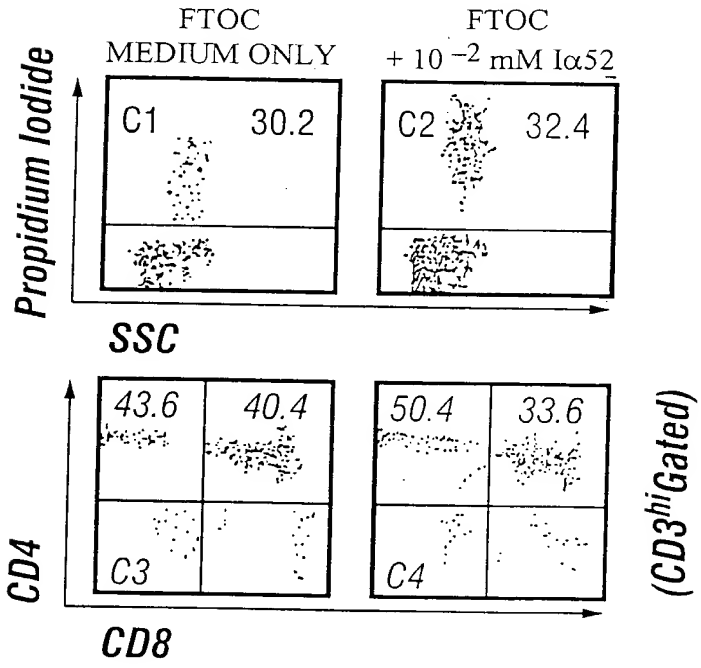


FIG. 10C

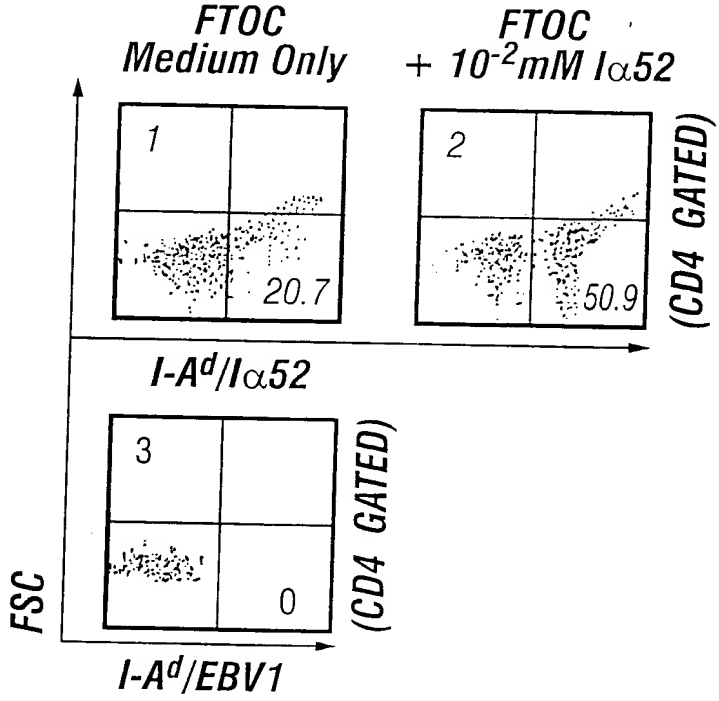

FTOC
Medium Only
FTOC
+ 10-2mM Iα52
1
20.7
2
50.9
(CD4 GATED)
I-Ad/Iα52
3
0
(CD4 GATED)
FSC
I-Ad/EBV1

FIG. 11

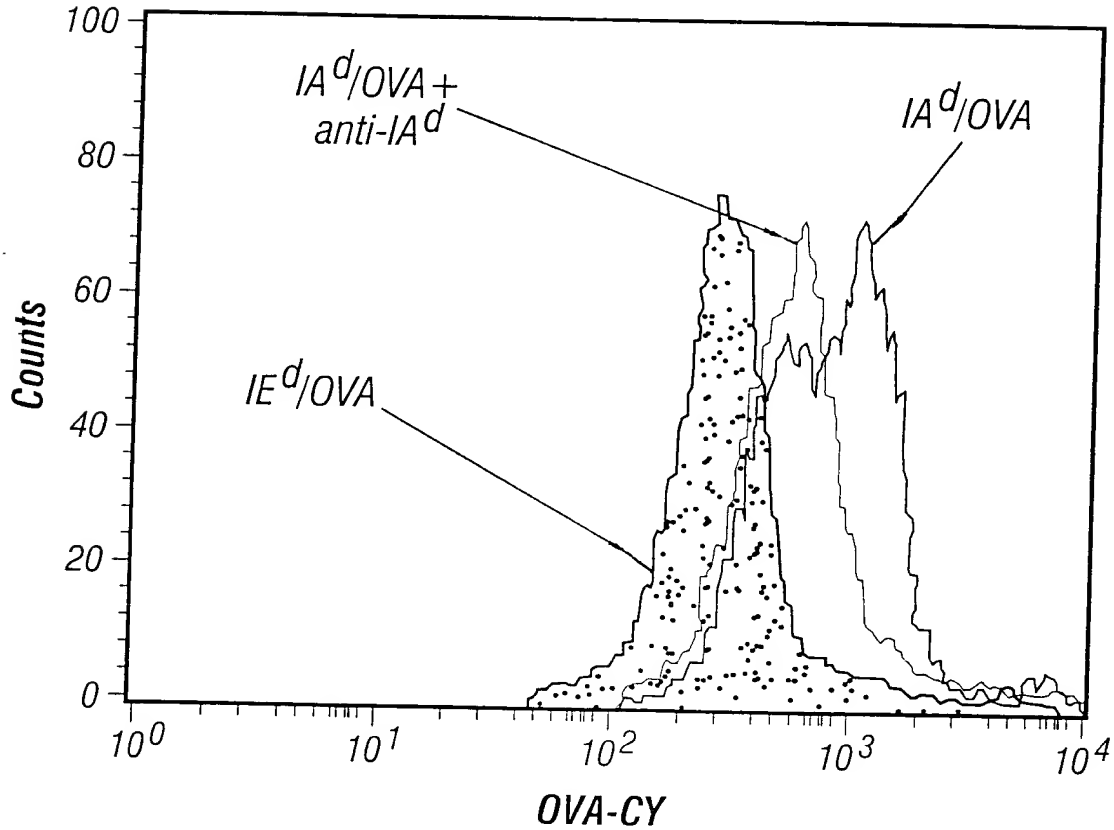

100
80
60
40
20
0
Counts
IAd/OVA+
anti-IAd
IAd/OVA
IEd/OVA
10^0
10^1
10^2
10^3
10^4
OVA-CY

FIG. 15

Iα52 SUPPLEMENTED FTOC
Hi15 EXPANDED LINE

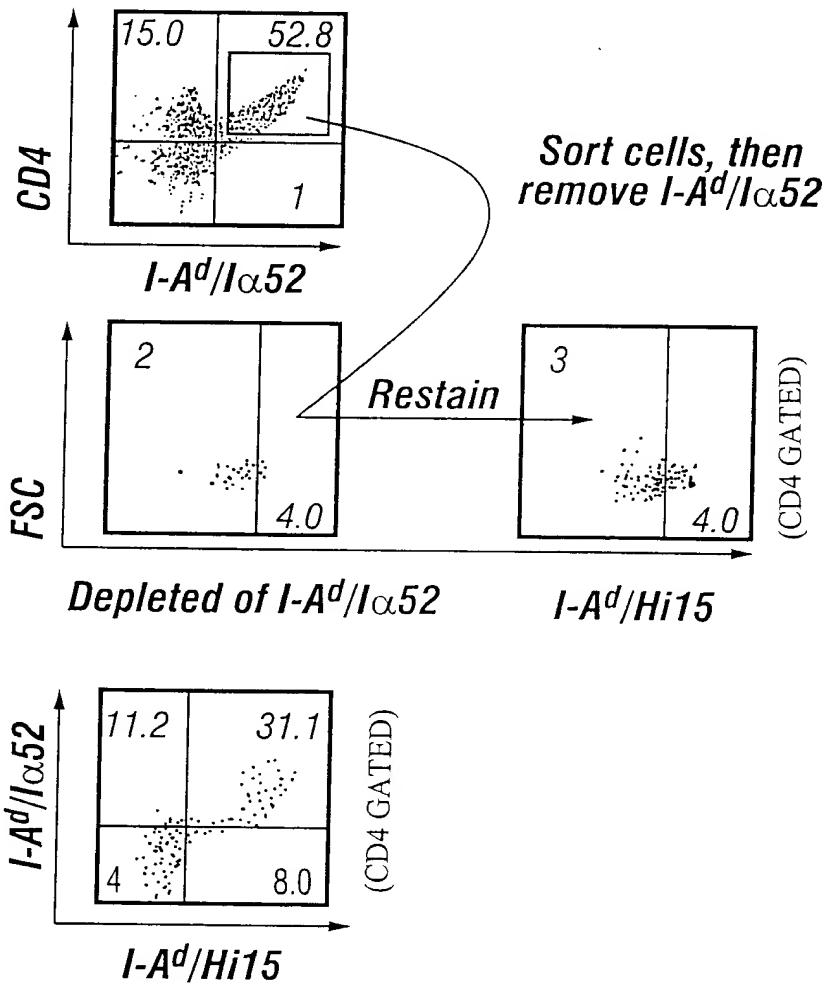


FIG. 12

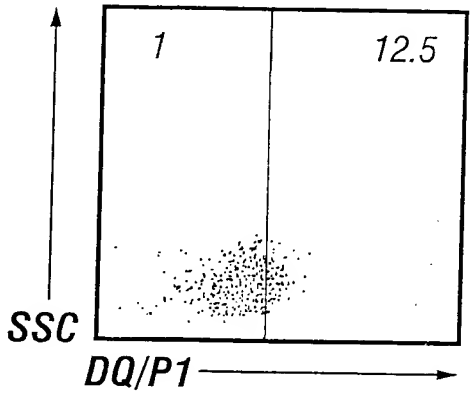


FIG. 13A

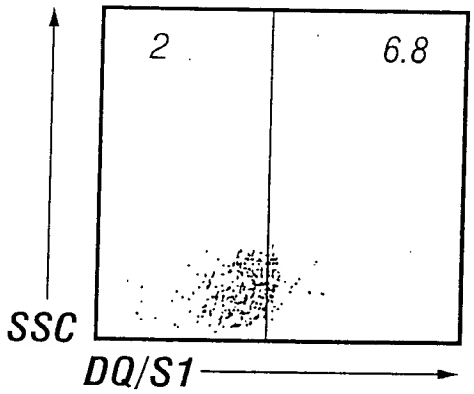


FIG. 13B

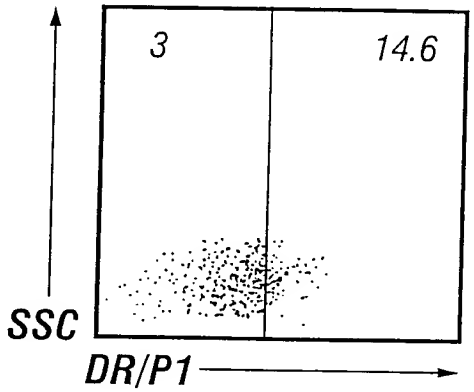


FIG. 13C

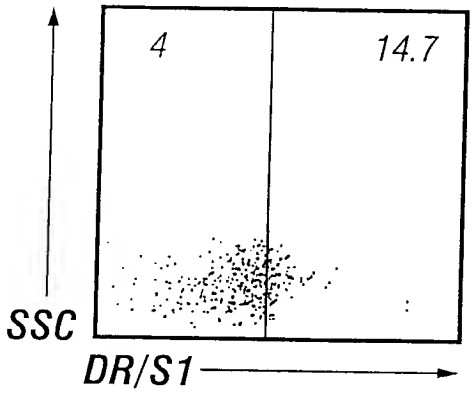


FIG. 13D

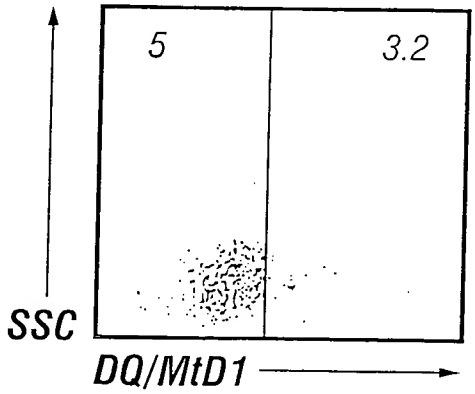


FIG. 13E

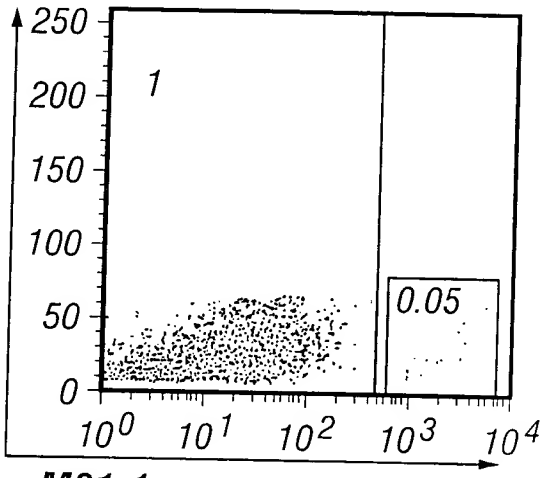


FIG. 14A

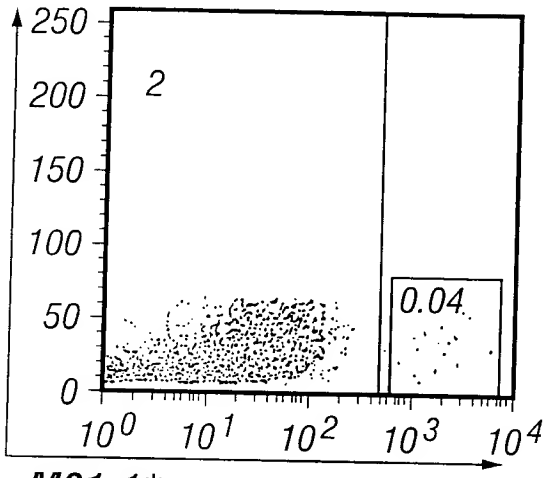


FIG. 14B

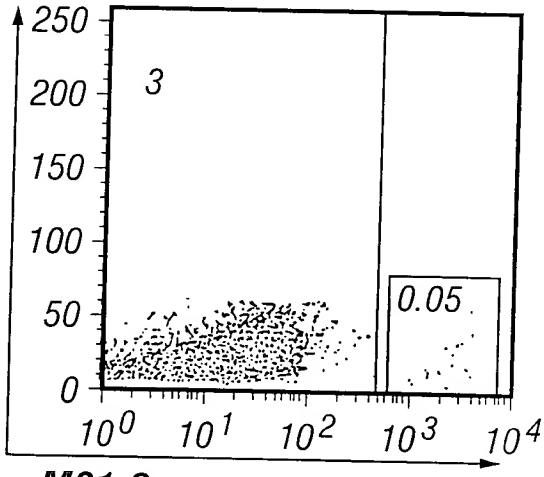


FIG. 14C

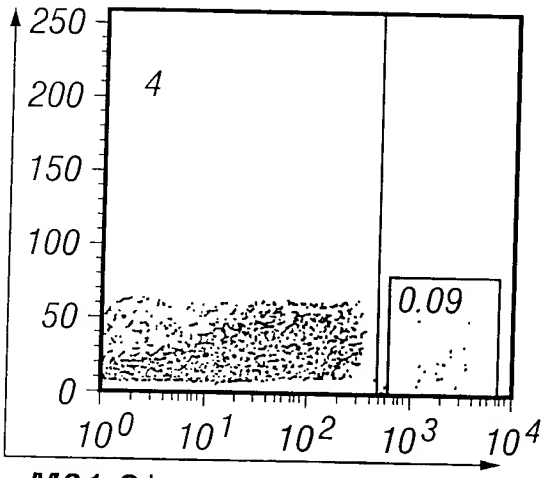


FIG. 14D

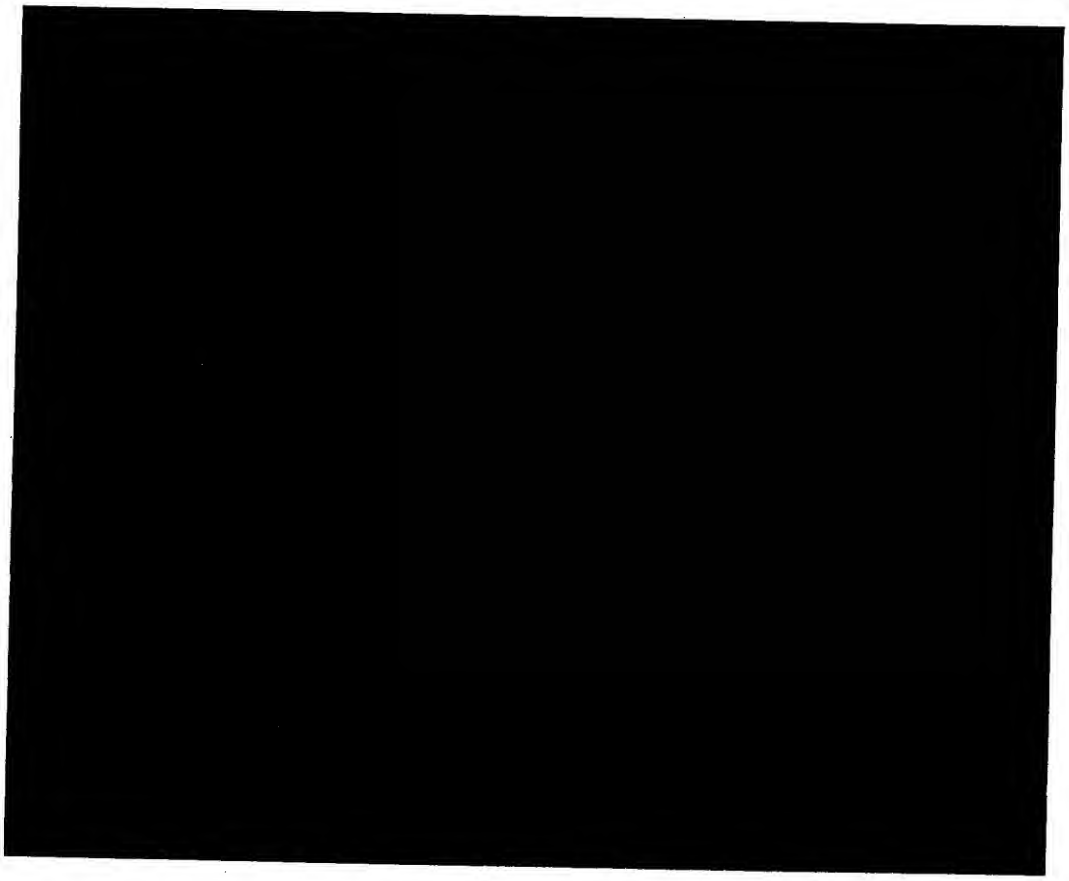


FIG. 16A

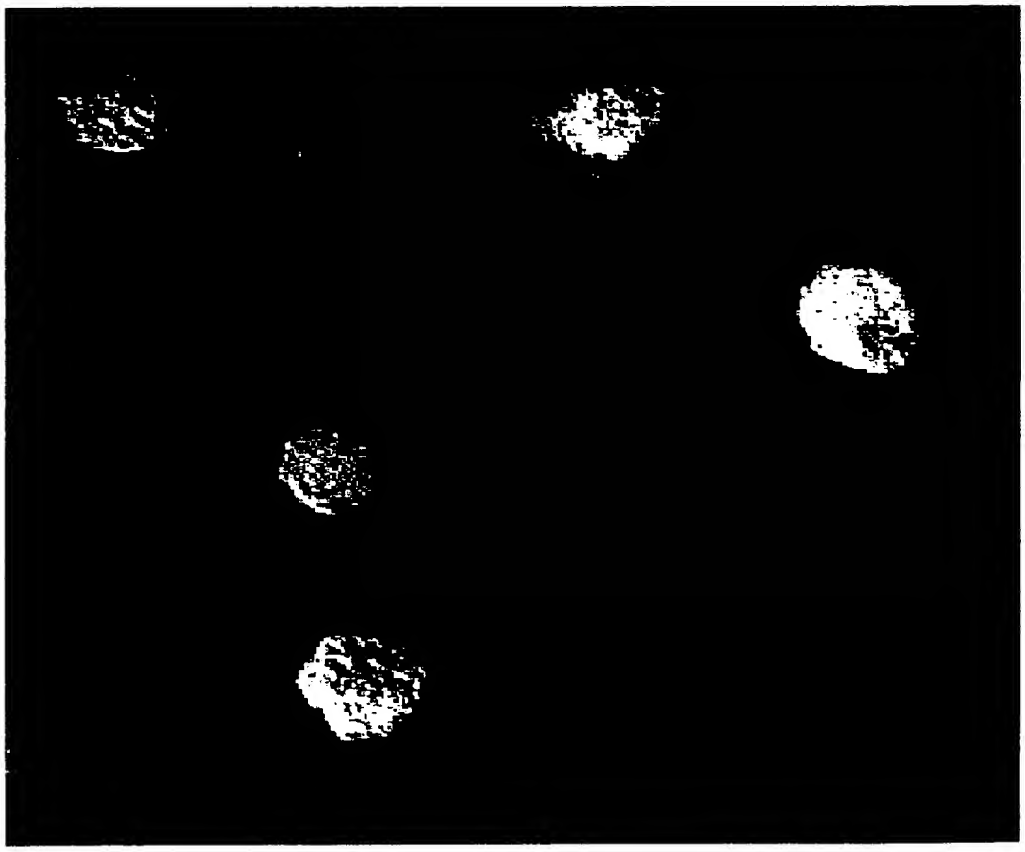


FIG. 16B

FIG. 16C

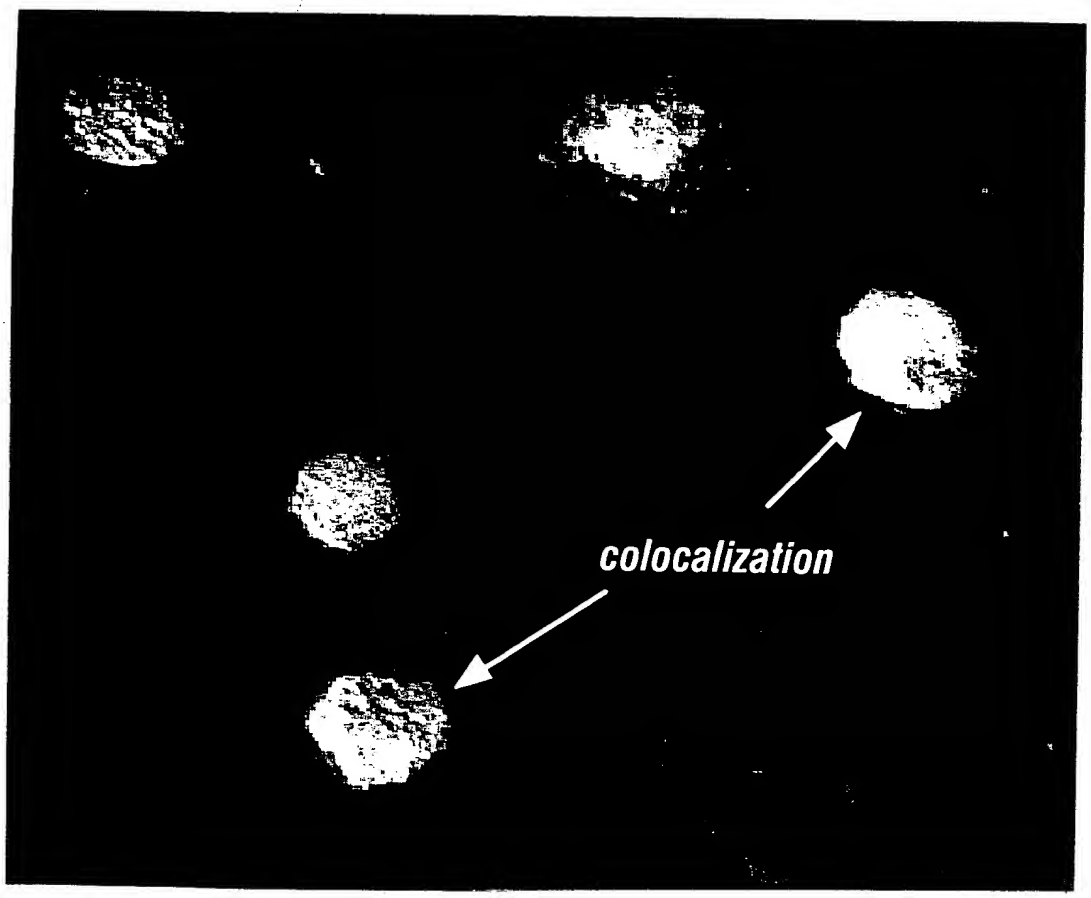


FIG. 16D

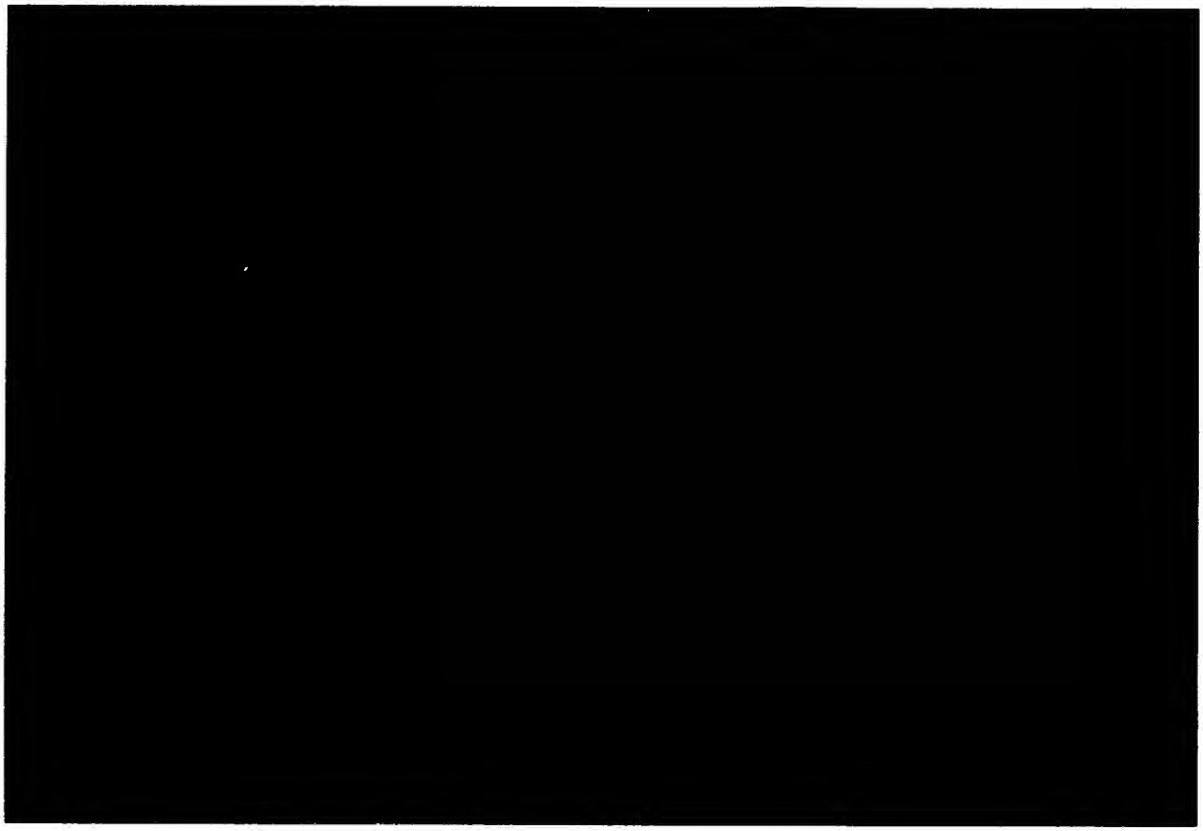


FIG. 17A

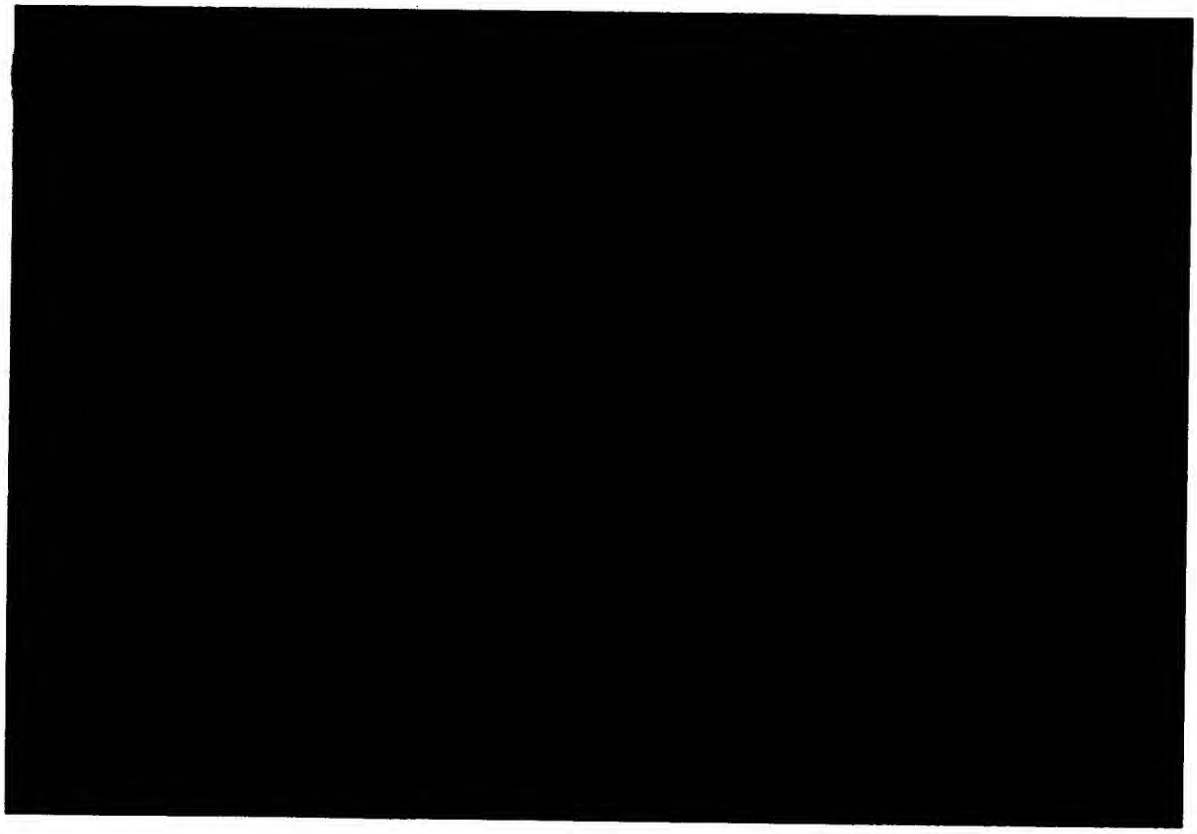


FIG. 17B

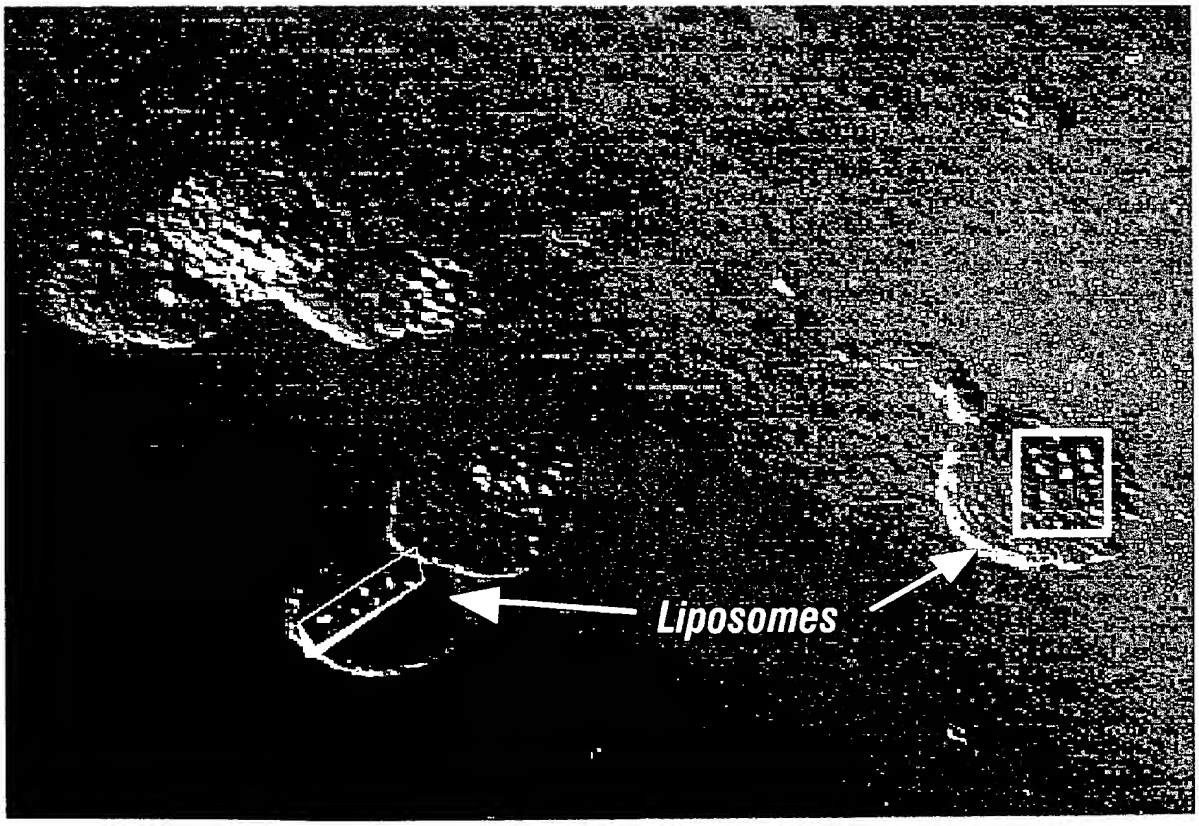


FIG. 17C

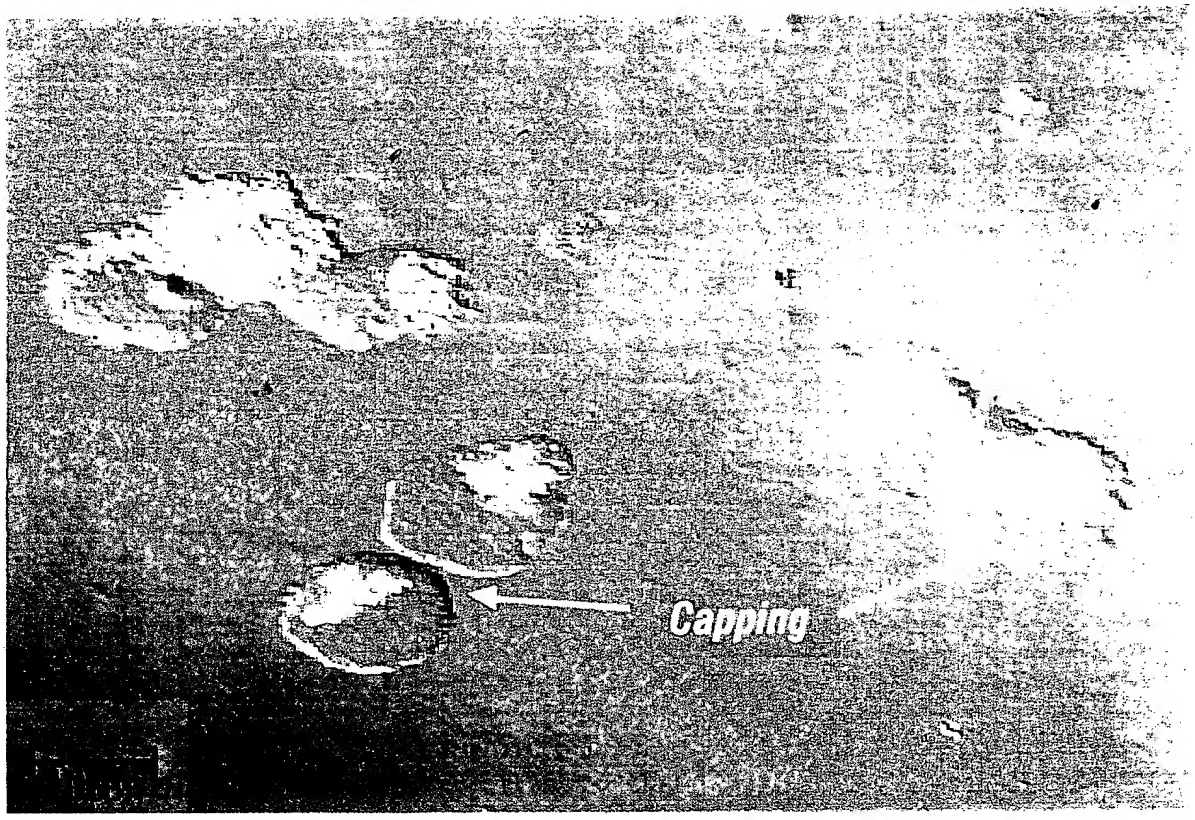


FIG. 17D

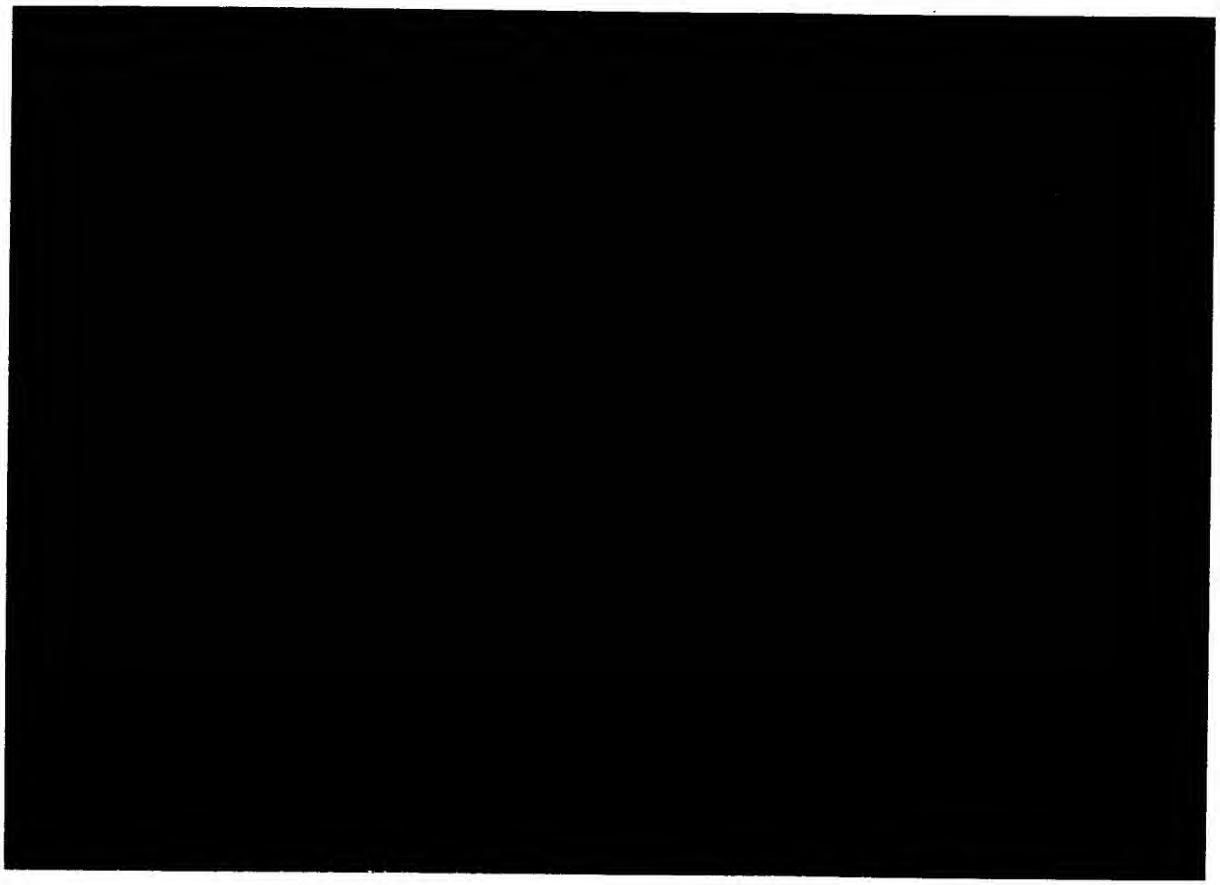


FIG. 18A

FIG. 18B

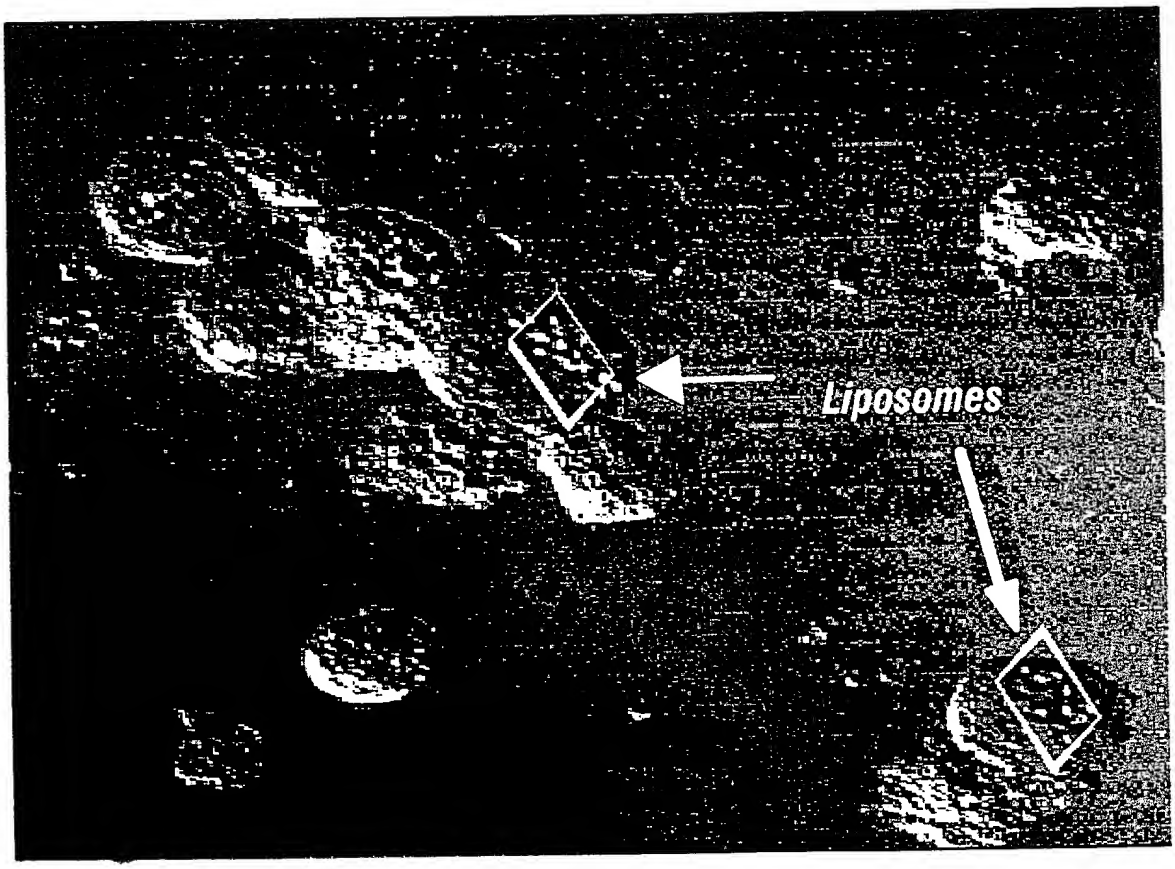


FIG. 18C

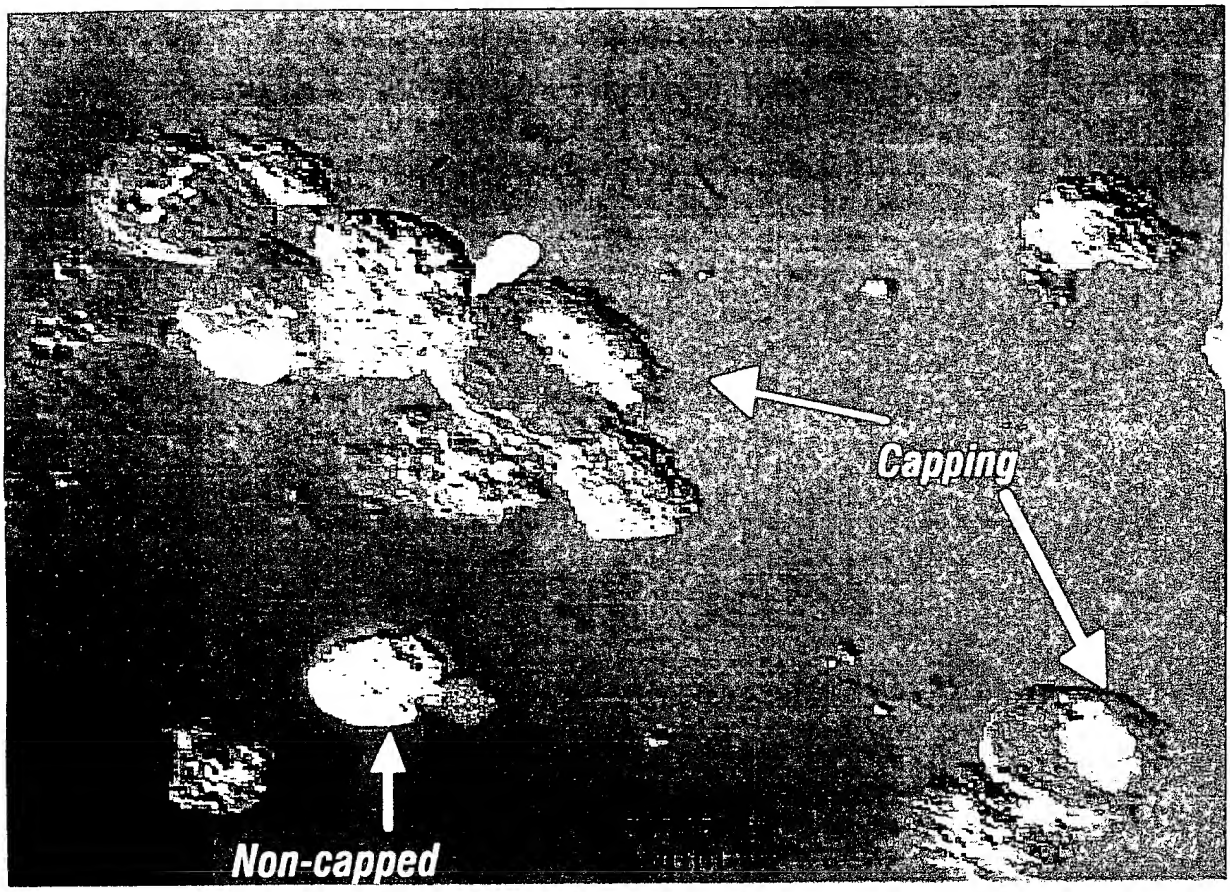
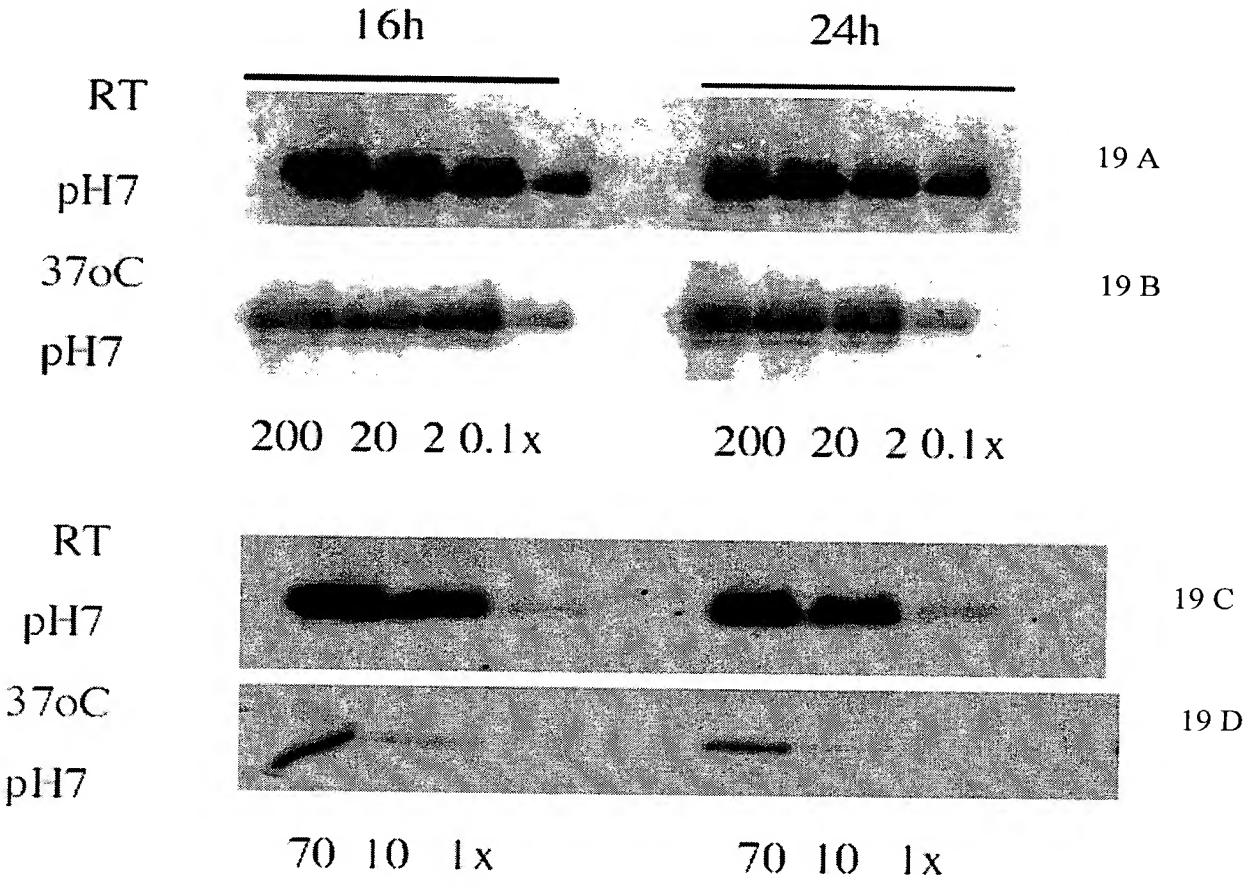


FIG. 18D

FIG. 19


16h
24h
RT
pH7
37oC
pH7
19 A
19 B
200 20 2 0.1x
200 20 2 0.1x
RT
pH7
37oC
pH7
19 C
19 D
70 10 1x
70 10 1x

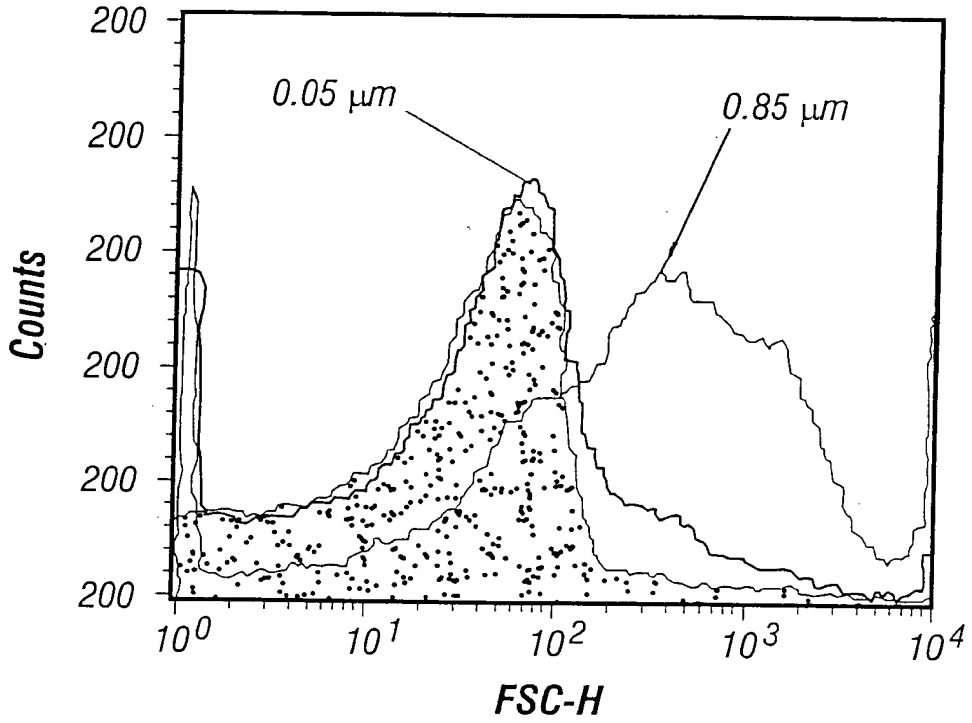

200
200
200
200
200
Counts
0.05 µm
0.85 µm
10^0
10^1
10^2
10^3
10^4
FSC-H

FIG. 20

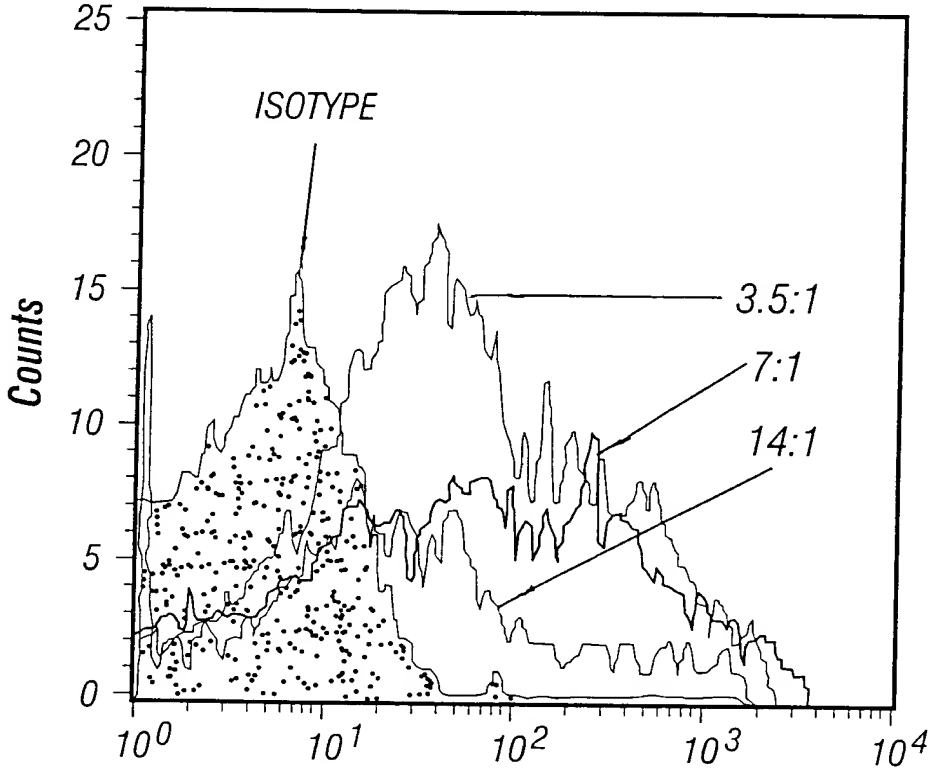

25
20
15
10
5
0
Counts
ISOTYPE
3.5:1
7:1
14:1
10^0
10^1
10^2
10^3
10^4
FL1-H

FIG. 21

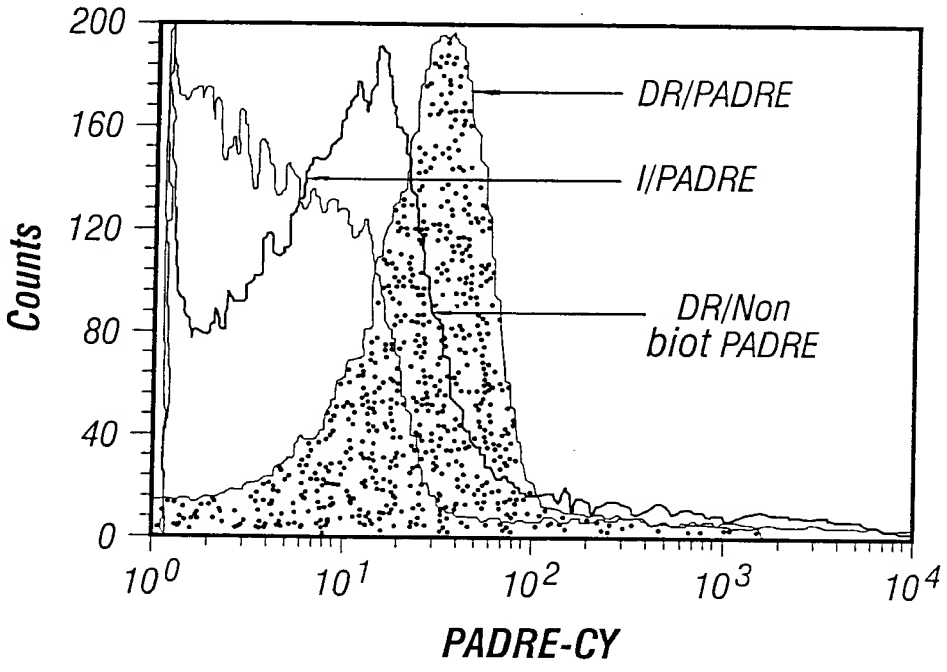

200
160
120
80
40
0
Counts
DR/PADRE
I/PADRE
DR/Non biot PADRE
10^0
10^1
10^2
10^3
10^4
PADRE-CY

FIG. 22

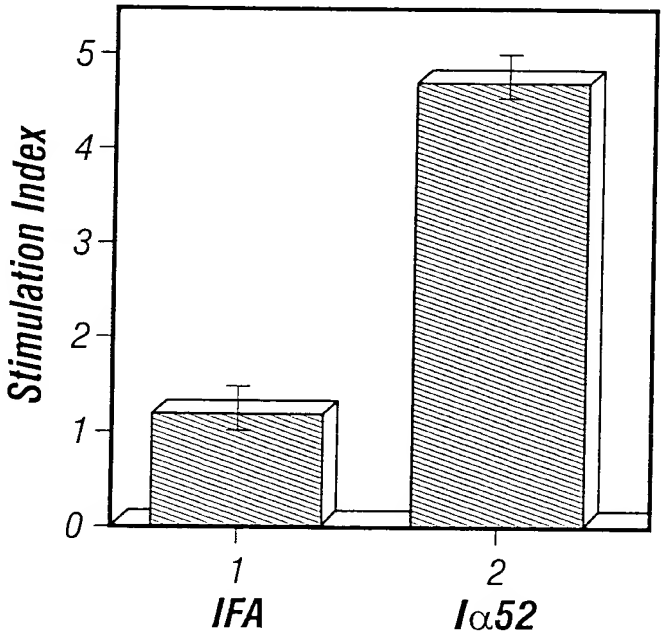

5
4
3
2
1
0
Stimulation Index
1
IFA
2
Iα52

FIG. 26

TCC 16 (WASH COMPLEXES) .007

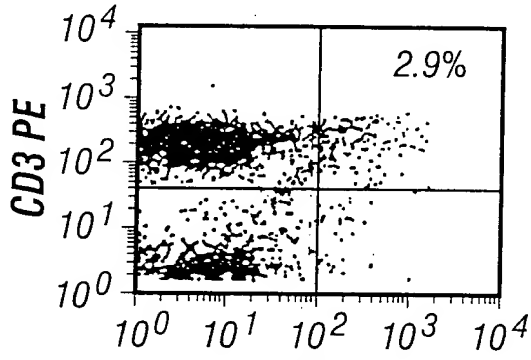


FIG. 23A

TCC 16.005

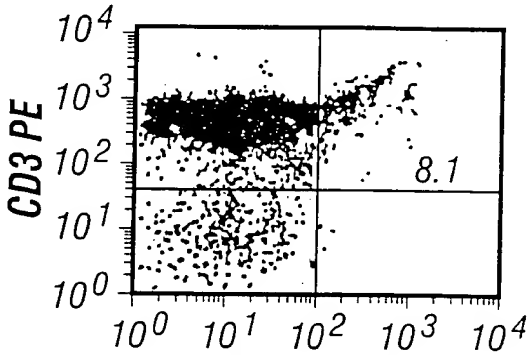


FIG. 23B

TCC 16 (DR/HA) .011

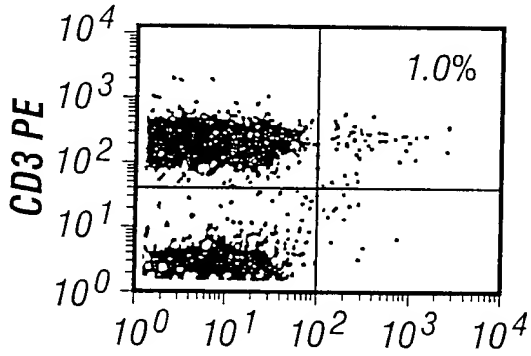


FIG. 23C

TCC 16.006

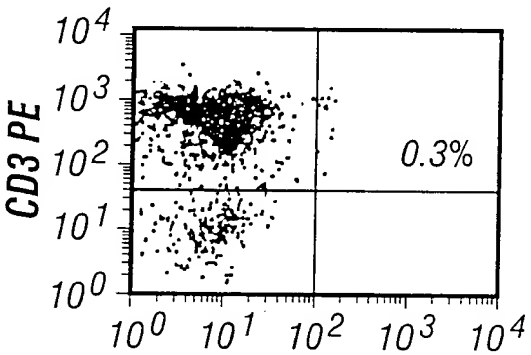


FIG. 23D

TCC 16 (NON-BIOT PADRE) .010

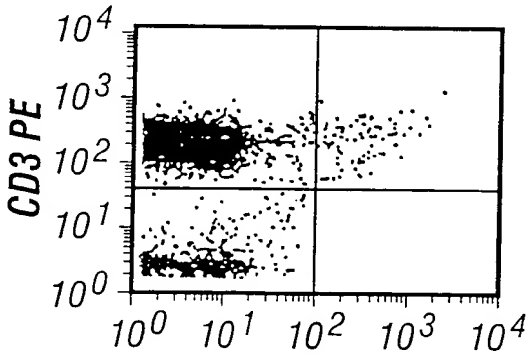


FIG. 23E

TCC 16 (CLASS 1/PADRE) .009

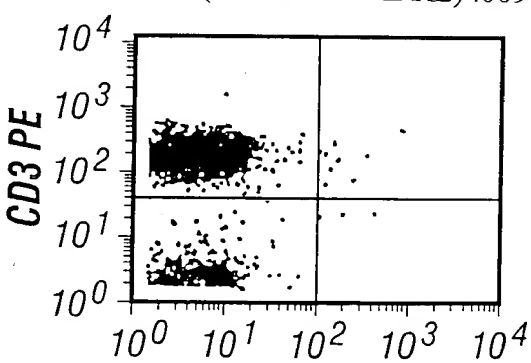


FIG. 23F

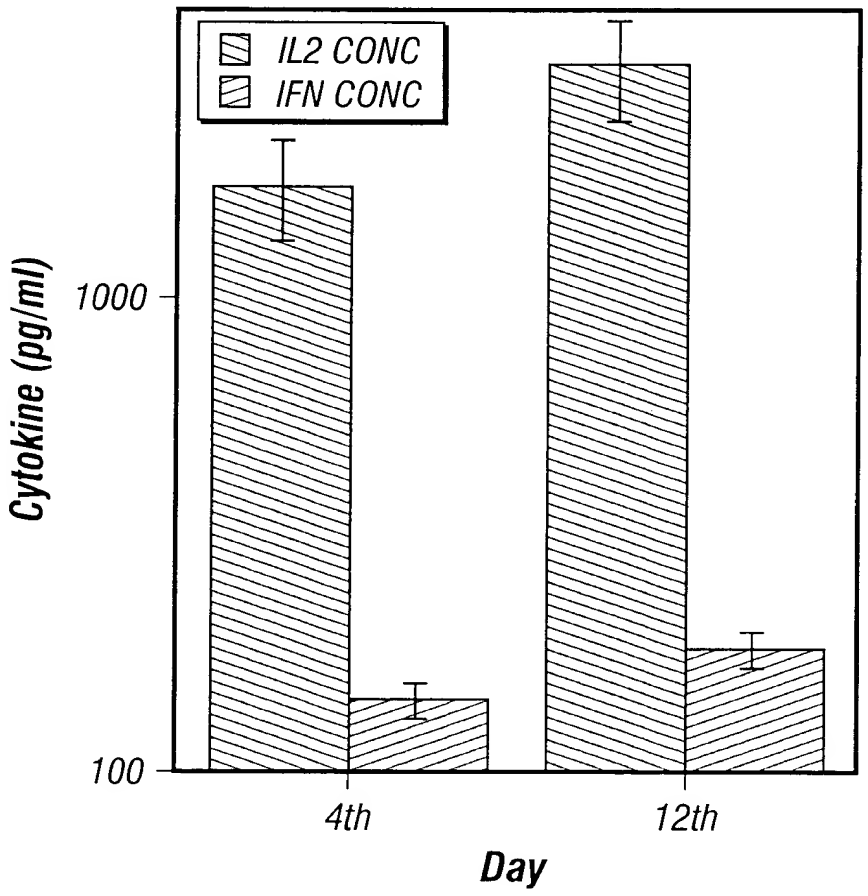


FIG. 24

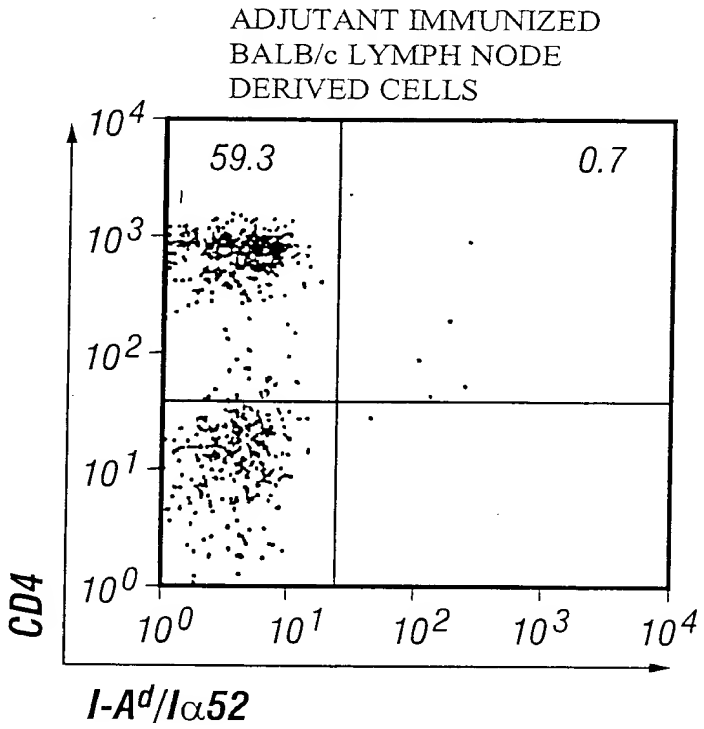


FIG. 25A

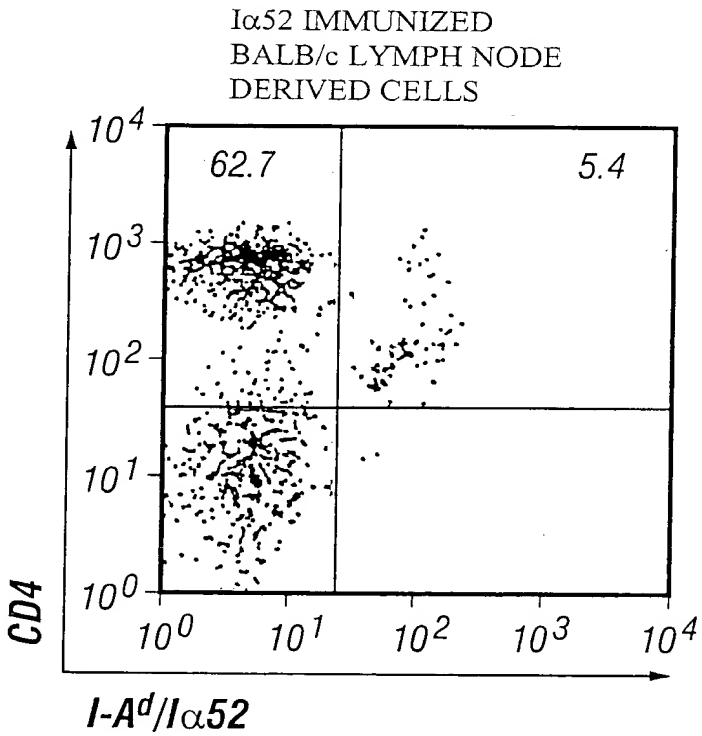


FIG. 25B

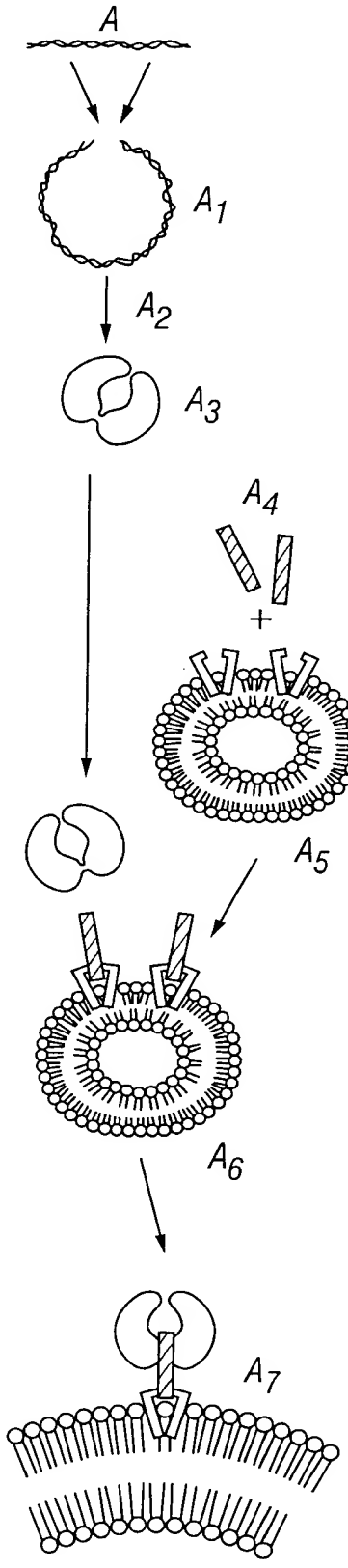


FIG. 27A

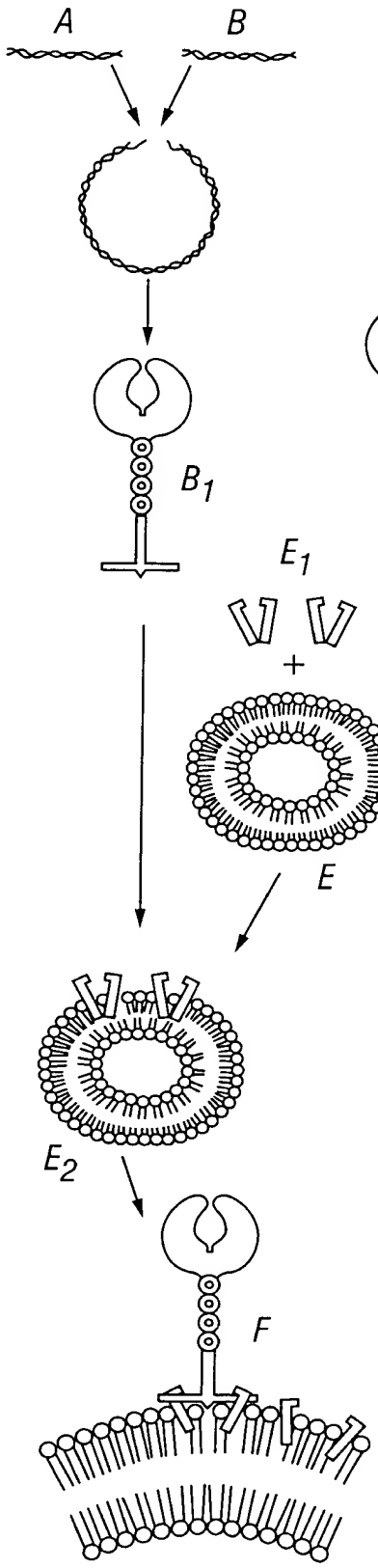


FIG. 27B

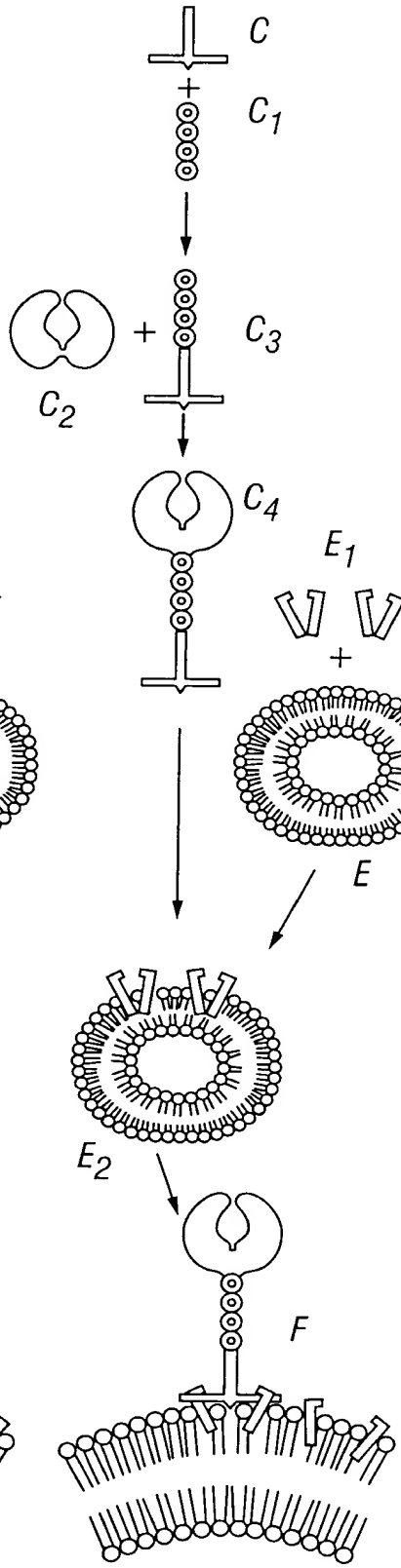


FIG. 27C

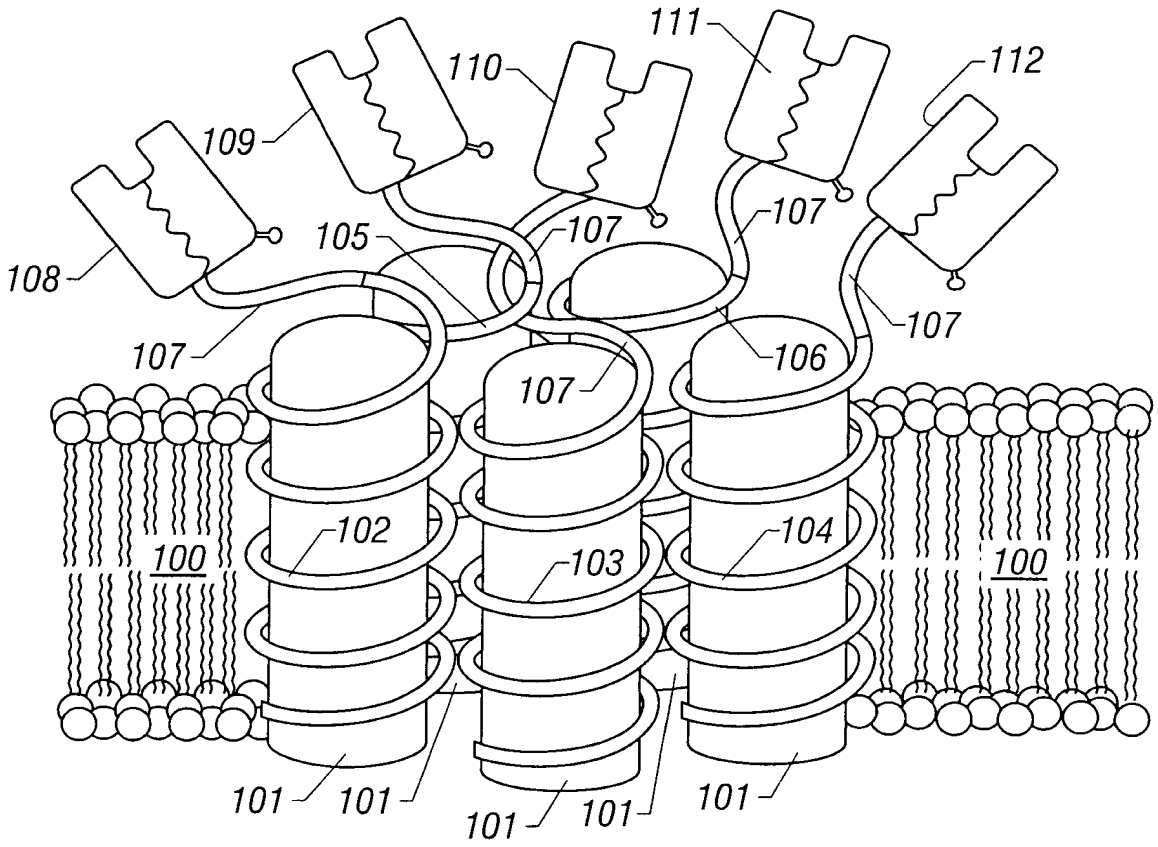

111
110
112
109
107
107
105
107
108
107
106
107
107
102
104
100
103
100
101
101
101
101
101

FIG. 28

B7.1-CTB construct translation DNA-PROTEIN

```
M   G   H   T   R   R   Q   G   T   S   P   S   K   C   P
atg ggc cac aca cgg agg cag gga aca tca cca tcc aag tgt cca
Y   L   N   F   F   Q   L   L   V   L   A   G   L   S   H
tac ctc aat ttc ttt cag ctc ttg gtg ctg gct ggt ctt tct cac
F   C   S   G   V   I   H   V   T   K   E   V   K   E   V
ttc tgt tca ggt gtt atc cac gtg acc aag gaa gtg aaa gaa gtg
A   T   L   S   C   G   H   N   V   S   V   E   E   L   A
gca acg ctg tcc tgt ggt cac aat gtt tct gtt gaa gag ctg gca
Q   T   R   I   Y   W   Q   K   E   K   K   M   V   L   T
caa act cgc atc tac tgg caa aag gag aag aaa atg gtg ctg act
M   M   S   G   D   M   N   I   W   P   E   Y   K   N   R
atg atg tct ggg gac atg aat ata tgg ccc gag tac aag aac cgg
T   I   F   D   I   T   N   N   L   S   I   V   I   L   A
acc atc ttt gat atc act aat aac ctc tcc att gtg atc ctg gct
L   R   P   S   D   E   G   T   Y   E   C   V   V   L   K
ctg cgc cca tct gac gag ggc aca tac gag tgt gtt gtt ctg aag
Y   E   K   D   A   F   K   R   E   H   L   A   E   V   T
tat gaa aaa gac gct ttc aag cgg gaa cac ctg gct gaa gtg acg
L   S   V   K   A   D   F   P   T   P   S   I   S   D   F
tta tca gtc aaa gct gac ttc cct aca cct agt ata tct gac ttt
E   I   P   T   S   N   I   R   R   I   I   C   S   T   S
gaa att cca act tct aat att aga agg ata att tgc tca acc tct
G   G   F   P   E   P   H   L   S   W   L   E   N   G   E
gga ggt ttt cca gag cct cac ctc tcc tgg ttg gaa aat gga gaa
E   L   N   A   I   N   T   T   V   S   Q   D   P   E   T
gaa tta aat gcc atc aac aca aca gtt tcc caa gat cct gaa act
E   L   Y   A   V   S   E   F   G   G   S   G   G   S   A
gag ctc tat gct gtt agc gaa ttc ggc ggc tcc ggt ggt agc gcc
T   P   Q   N   I   T   D   L   C   A   E   Y   H   N   T
aca cct caa aat att act gat ttg tgt gca gaa tac cac aac aca
Q   I   H   T   L   N   D   K   I   F   S   Y   T   E   S
caa ata cat acg cta aat gat aag ata ttt tcg tat aca gaa tct
L   A   G   K   R   E   M   A   I   I   T   F   K   N   G
cta gct gga aaa aga gag atg gct atc att act ttt aag aat ggt
```

FIG. 29A

B7.1-CTB construct translation DNA-PROTEIN (Cont.)

```
A   T   F   Q   V   E   V   P   G   S   Q   H   I   D   S
gca act ttt caa gta gaa gta cca ggt agt caa cat ata gat tca
Q   K   K   A   I   E   R   M   K   D   T   L   R   I   A
caa aaa aaa gcg att gaa agg atg aag gat acc ctg agg att gca
Y   L   T   E   A   K   V   E   K   L   C   V   W   N   N
tat ctt act gaa gct aaa gtc gaa aag tta tgt gta tgg aat aat
K   T   P   H   A   I   A   A   I   S   M   A   N   *
aaa acg cct cat gcg att gcc gca att agt atg gca aat taa
```

FIG. 29B

B7.2-CTB construct translation DNA-PROTEIN

```
M   G   L   S   N   I   L   F   V   M   A   F   L   L   S
atg gga ctg agt aac att ctc ttt gtg atg gcc ttc ctg ctc tct
G   A   A   P   L   K   I   Q   A   Y   F   N   E   T   A
ggt gct gct cct ctg aag att caa gct tat ttc aat gag act gca
D   L   P   C   Q   F   A   N   S   Q   N   Q   S   L   S
gac ctg cca tgc caa ttt gca aac tct caa aac caa agc ctg agt
E   L   V   V   F   W   Q   D   Q   E   N   L   V   L   N
gag cta gta gta ttt tgg cag gac cag gaa aac ttg gtt ctg aat
E   V   Y   L   G   K   E   K   F   D   S   V   H   S   K
gag gta tac tta ggc aaa gag aaa ttt gac agt gtt cat tcc aag
Y   M   G   R   T   S   F   D   S   D   S   W   T   L   R
tat atg ggc cgc aca agt ttt gat tcg gac agt tgg acc ctg aga
L   H   N   L   Q   I   K   D   K   G   L   Y   Q   C   I
ctt cac aat ctt cag atc aag gac aag ggc ttg tat caa tgt atc
I   H   H   K   K   P   T   G   M   I   R   I   H   Q   M
atc cat cac aaa aag ccc aca gga atg att cgc atc cac cag atg
N   S   E   L   S   V   L   A   N   F   S   Q   P   E   I
aat tct gaa ctg tca gtg ctt gct aac ttc agt caa cct gaa ata
V   P   I   S   N   I   T   E   N   V   Y   I   N   L   T
gta cca att tct aat ata aca gaa aat gtg tac ata aat ttg acc
C   S   S   I   H   G   Y   P   E   P   K   K   M   S   V
tgc tca tct ata cac ggt tac cca gaa cct aag aag atg agt gtt
```

FIG. 30A

B7.2-CTB construct translation DNA-PROTEIN (Cont.)

```
L   L   R   T   K   N   S   T   I   E   Y   D   G   I   M
ttg cta aga acc aag aat tca act atc gag tat gat ggt att atg
Q   K   S   Q   D   N   V   T   E   L   Y   D   V   S   I
cag aaa tct caa gat aat gtc aca gaa ctg tac gac gtt tcc atc
S   L   S   V   S   F   P   D   V   T   S   N   M   T   I
agc ttg tct gtt tca ttc cct gat gtt acg agc aat atg acc atc
F   C   I   L   E   T   D   K   T   R   L   L   S   S   P
ttc tgt att ctg gaa act gac aag acg cgg ctt tta tct tca cct
F   S   I   E   L   E   D   P   Q   P   P   P   D   H   E
ttc tct ata gag ctt gag gac cct cag cct ccc cca gac cac gaa
F   G   G   S   G   G   S   A   T   P   Q   N   I   T   D
ttc ggc ggc tcc ggt ggt agc gcc aca cct caa aat att act gat
L   C   A   E   Y   H   N   T   Q   I   H   T   L   N   D
ttg tgt gca gaa tac cac aac aca caa ata cat acg cta aat gat
K   I   F   S   Y   T   E   S   L   A   G   K   R   E   M
aag ata ttt tcg tat aca gaa tct cta gct gga aaa aga gag atg
A   I   I   T   F   K   N   G   A   T   F   Q   V   E   V
gct atc att act ttt aag aat ggt gca act ttt caa gta gaa gta
P   G   S   Q   H   I   D   S   Q   K   K   A   I   E   R
cca ggt agt caa cat ata gat tca caa aaa aaa gcg att gaa agg
M   K   D   T   L   R   I   A   Y   L   T   E   A   K   V
atg aag gat acc ctg agg att gca tat ctt act gaa gct aaa gtc
E   K   L   C   V   W   N   N   K   T   P   H   A   I   A
gaa aag tta tgt gta tgg aat aat aaa acg cct cat gcg att gcc
A   I   S   M   A   N   *
gca att agt atg gca aat taa
```

FIG. 30B

DRA1-CTB construct translation PROTEIN-DNA

```
M   A   I   S   G   V   P   V   L   G   F   F   I   I   A
ATG GCC ATA AGT GGA GTC CCT GTG CTA GGA TTT TTC ATC ATA GCT
V   L   M   S   A   Q   E   S   W   A   I   K   E   E   H
GTG CTG ATG AGC GCT CAG GAA TCA TGG GCT ATC AAA GAA GAA CAT
V   I   I   Q   A   E   F   Y   L   N   P   D   Q   S   G
GTG ATC ATC CAG GCC GAG TTC TAT CTG AAT CCT GAC CAA TCA GGC
E   F   M   F   D   F   D   G   D   E   I   F   H   V   D
GAG TTT ATG TTT GAC TTT GAT GGT GAT GAG ATT TTC CAT GTG GAT
M   A   K   K   E   T   V   W   R   L   E   E   F   G   R
ATG GCA AAG AAG GAG ACG GTC TGG CGG CTT GAA GAA TTT GGA CGA
F   A   S   F   E   A   Q   G   A   L   A   N   I   A   V
TTT GCC AGC TTT GAG GCT CAA GGT GCA TTG GCC AAC ATA GCT GTG
D   K   A   N   L   E   I   M   T   K   R   S   N   Y   T
GAC AAA GCC AAC CTG GAA ATC ATG ACA AAG CGC TCC AAC TAT ACT
P   I   T   N   V   P   P   E   V   T   V   L   T   N   S
CCG ATC ACC AAT GTA CCT CCA GAG GTA ACT GTG CTC ACG AAC AGC
P   V   E   L   R   E   P   N   V   L   I   C   F   I   D
CCT GTG GAA CTG AGA GAG CCC AAC GTC CTC ATC TGT TTC ATC GAC
K   F   T   P   P   V   V   N   V   T   W   L   R   N   G
AAG TTC ACC CCA CCA GTG GTC AAT GTC ACG TGG CTT CGA AAT GGA
K   P   V   T   T   G   V   S   E   T   V   F   L   P   R
AAA CCT GTC ACC ACA GGA GTG TCA GAG ACA GTC TTC CTG CCC AGG
E   D   H   L   F   R   K   F   H   Y   L   P   F   L   P
GAA GAC CAC CTT TTC CGC AAG TTC CAC TAT CTC CCC TTC CTG CCC
S   T   E   D   V   Y   D   C   R   V   E   H   W   G   L
TCA ACT GAG GAC GTT TAC GAC TGC AGG GTG GAG CAC TGG GGC TTG
D   E   P   L   L   K   H   W   E   F   D   A   P   S   P
GAT GAG CCT CTT CTC AAG CAC TGG GAG TTT GAT GCT CCA AGC CCT
L   P   E   T   T   E   E   F   G   G   S   G   G   S   A
CTC CCA GAG ACT ACA GAG GAA TTC GGT GGT TCC GGT GGT TCC GCG
Q   L   E   W   E   L   Q   A   L   E   K   E   N   A   Q
CAG CTG GAA TGG GAA CTG CAG GCG CTG GAA AAA GAA AAC GCG CAG
L   E   W   E   L   Q   A   L   E   K   E   L   A   Q   G
CTG GAA TGG GAA CTG CAG GCG CTG GAA AAA GAA CTG GCG CAG GGC
```

FIG. 31A

DRA1-CTB construct translation PROTEIN-DNA (Cont.)

```
G   S   G   G   S   A   T   P   Q   N   I   T   D   L   C
GGC TCC GGT GGT AGC GCC ACA CCT CAA AAT ATT ACT GAT TTG TGT
A   E   Y   H   N   T   Q   I   H   T   L   N   D   K   I
GCA GAA TAC CAC AAC ACA CAA ATA CAT ACG CTA AAT GAT AAG ATA
F   S   Y   T   E   S   L   A   G   K   R   E   M   A   I
TTT TCG TAT ACA GAA TCT CTA GCT GGA AAA AGA GAG ATG GCT ATC
I   T   F   K   N   G   A   T   F   Q   V   E   V   P   G
ATT ACT TTT AAG AAT GGT GCA ACT TTT CAA GTA GAA GTA CCA GGT
S   Q   H   I   D   S   Q   K   K   A   I   E   R   M   K
AGT CAA CAT ATA GAT TCA CAA AAA AAA GCG ATT GAA AGG ATG AAG
D   T   L   R   I   A   Y   L   T   E   A   K   V   E   K
GAT ACC CTG AGG ATT GCA TAT CTT ACT GAA GCT AAA GTC GAA AAG
L   C   V   W   N   N   K   T   P   H   A   I   A   A   I
TTA TGT GTA TGG AAT AAT AAA ACG CCT CAT GCG ATT GCC GCA ATT
S   M   A   N   *
AGT ATG GCA AAT TAA
```

FIG. 31B

DRB1-biotag construct translation PROTEIN-DNA

```
1/1
M   V   C   L   K   F   P   G   G   S   C   M   A   A   L
ATG GTG TGT CTG AAG TTC CCT GGA GGC TCC TGC ATG GCA GCT CTG
46/16
T   V   T   L   M   V   L   S   S   P   L   A   L   A   G
ACA GTG ACA CTG ATG GTG CTG AGC TCC CCA CTG GCT TTG GCT GGG
91/31
D   T   R   P   R   F   L   E   Q   V   K   H   E   C   H
GAC ACC CGA CCA CGT TTC TTG GAG CAG GTT AAA CAT GAG TGT CAT
136/46
F   F   N   G   T   E   R   V   R   F   L   D   R   Y   F
TTC TTC AAC GGG ACG GAG CGG GTG CGG TTC CTG GAC AGA TAC TTC
181/61
Y   H   Q   E   E   Y   V   R   F   D   S   D   V   G   E
TAT CAC CAA GAG GAG TAC GTG CGC TTC GAC AGC GAC GTG GGG GAG
```

FIG. 32A

DRB1-biotag construct translation PROTEIN-DNA (Cont.)

226/76

Y R A V T E L G R P D A E Y W

TAC CGG GCG GTG ACG GAG CTG GGG CGG CCT GAT GCC GAG TAC TGG

271/91

N S Q K D L L E Q K R A A V D

AAC AGC CAG AAG GAC CTC CTG GAG CAG AAG CGG GCC GCG GTG GAC

316/106

T Y C R H N Y G V G E S F T V

ACC TAC TGC AGA CAC AAC TAC GGG GTT GGT GAG AGC TTC ACA GTG

361/121

Q R R V Y P E V T V Y P A K T

CAG CGG CGA GTC TAT CCT GAG GTG ACT GTG TAT CCT GCA AAG ACC

406/136

Q P L Q H H N L L V C S V N G

CAG CCC CTG CAG CAC CAC AAC CTC CTG GTC TGC TCT GTG AAT GGT

451/151

F Y P G S I E V R W F R N G Q

TTC TAT CCA GGC AGC ATT GAA GTC AGG TGG TTC CGG AAC GGC CAG

496/166

E E K T G V V S T G L I Q N G

GAA GAG AAG ACT GGG GTG GTG TCC ACA GGC CTG ATC CAG AAT GGA

541/181

D W T F Q T L V M L E T V P R

GAC TGG ACC TTC CAG ACC CTG GTG ATG CTG GAA ACA GTT CCT CGG

586/196

S G E V Y T C Q V E H P S L T

AGT GGA GAG GTT TAC ACC TGC CAA GTG GAG CAC CCA AGC CTG ACG

631/211

S P L T V E W R A R S E S A Q

AGC CCT CTC ACA GTG GAA TGG AGA GCA CGG TCT GAA TCT GCA CAG

676/226

S K G G S G G S A Q L K K K L

AGC AAG GGC GGC TCC GGT GGT AGC GCC CAG CTG AAG AAG AAA CTC

FIG. 32B

DRB1-biotag construct translation PROTEIN-DNA (Cont.)

721/241

Q A L K K K N A Q L K Q K L Q

CAG GCT CTG AAA AAA AAG AAT GCC CAG CTC AAG CAG AAG CTG CAG

766/256

A L K K K L A Q G S G G S A G

GCC CTG AAG AAA AAG CTG GCT CAG GGT TCC GGT GGT TCC GCG GGT

811/271

G G L N D I F E A Q K I E W H

GGT GGT TTG AAC GAC ATC TTC GAA GCT CAG AAA ATC GAA TGG CAC

856/286

* *

TAA TAA

FIG. 32C

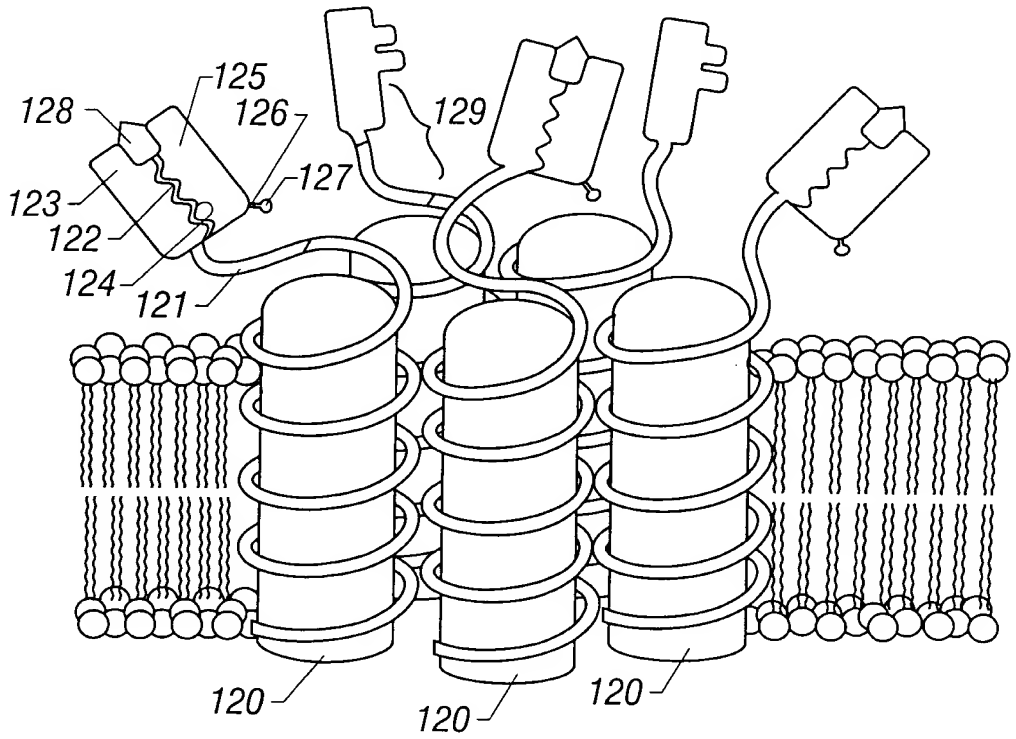

125
128
126
129
127
123
122
124
121
120
120
120

FIG. 33

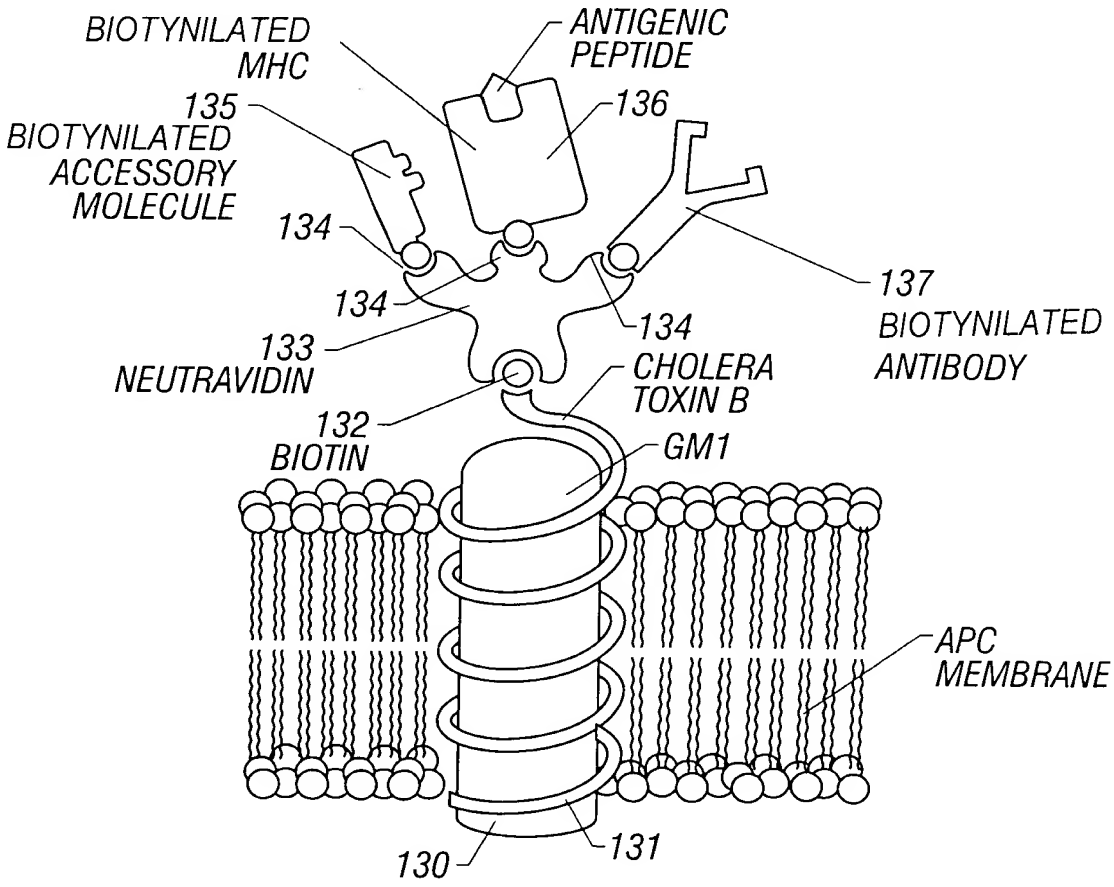

BIOTYNILATED MHC
ANTIGENIC PEPTIDE
135
136
BIOTYNILATED ACCESSORY MOLECULE
134
137
BIOTYNILATED ANTIBODY
134
134
133
NEUTRAVIDIN
CHOLERA TOXIN B
132
BIOTIN
GM1
APC MEMBRANE
130
131

FIG. 34

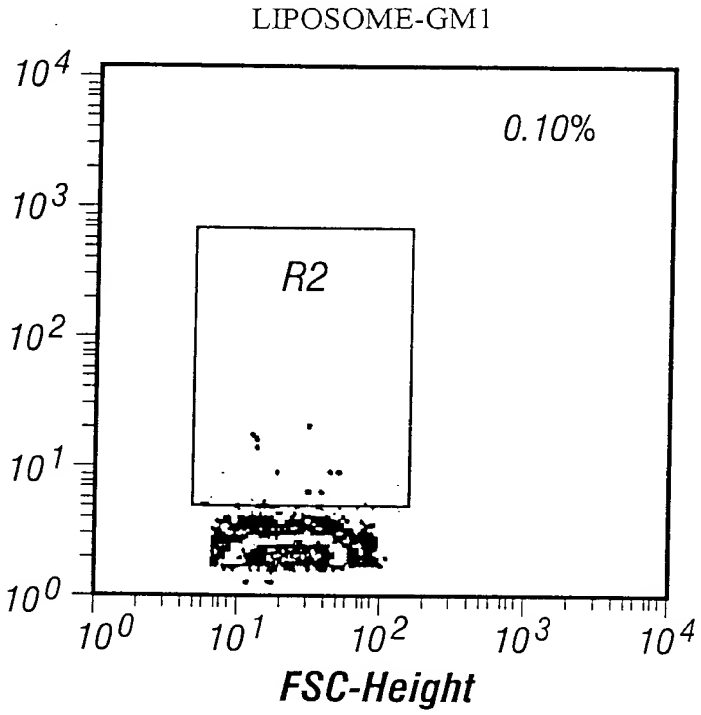


FIG. 35A

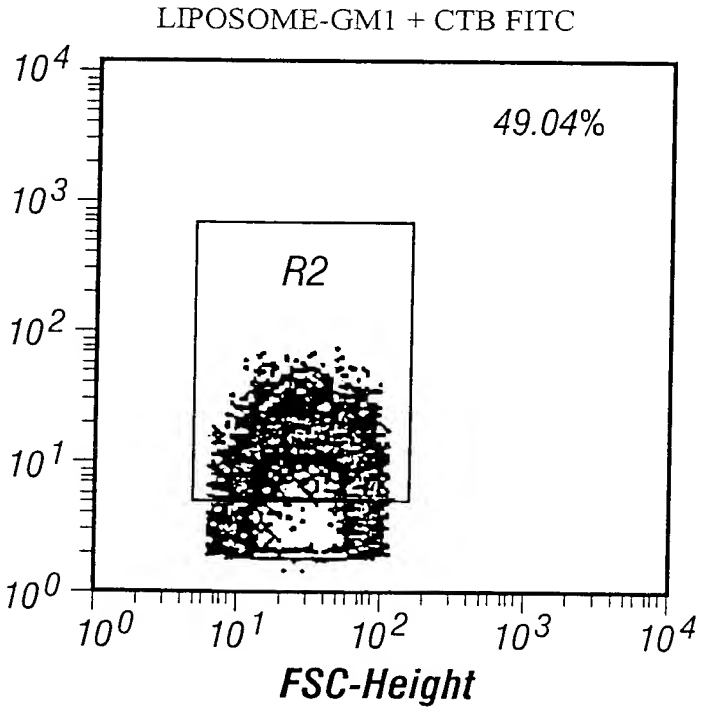


FIG. 35B

Name	Parameter	Gate	p MOLES CTB FITC	GEO MEAN	%GATED M2
Lip.001	FL1-H	G1	CONTROL-0	2.32	8.1
Lip.002	FL1-H	G1	25pMOLES	2.25	6.1
Lip.003	FL1-H	G1	50pMOLES	3.17	27.2
Lip.004	FL1-H	G1	100pMOLES	2.78	20.4
Lip.005	FL1-H	G1	200pMOLES	3.07	27.5
Lip.006	FL1-H	G1	400pMOLES	3.52	40.4
Lip.007	FL1-H	G1	800pMOLES	5.59	73.0
Lip.008	FL1-H	G1	2000pMOLES	7.57	82.4
Lip.009	FL1-H	G1	5000pMOLES	20.82	97.1

FIG. 36

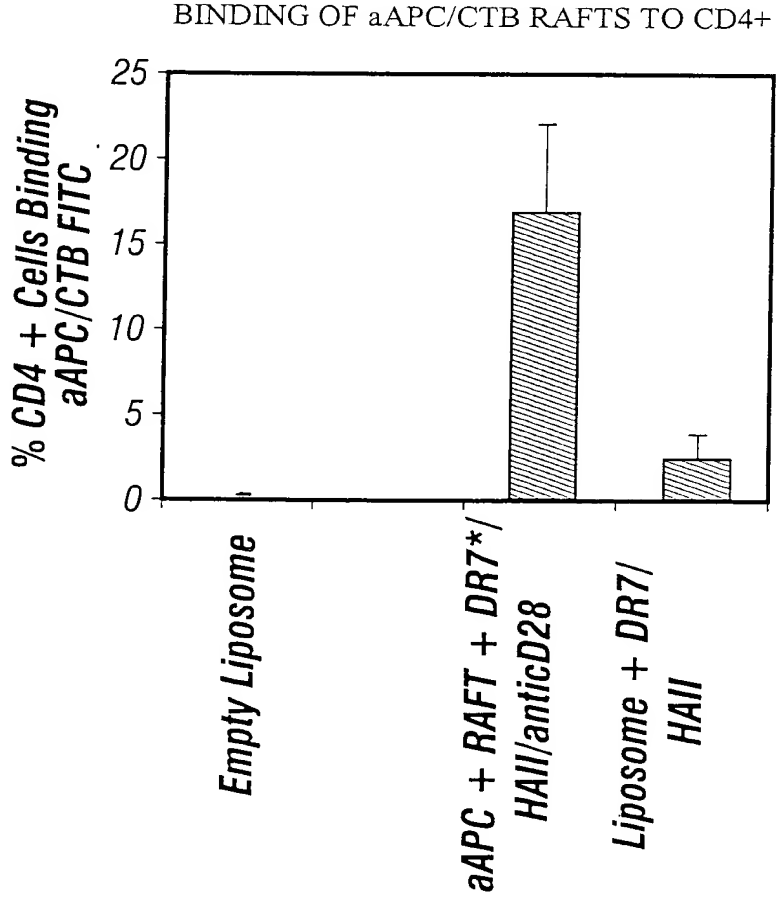


FIG. 37

CELLS + aAPC + RAFT (DR7*/HAII)

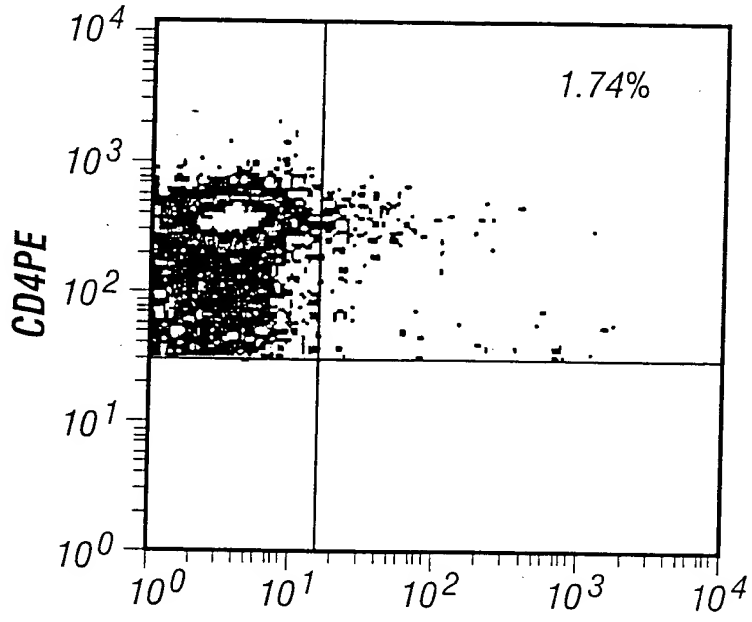


FIG. 38A

CELLS + aAPC (DR7/HAII)

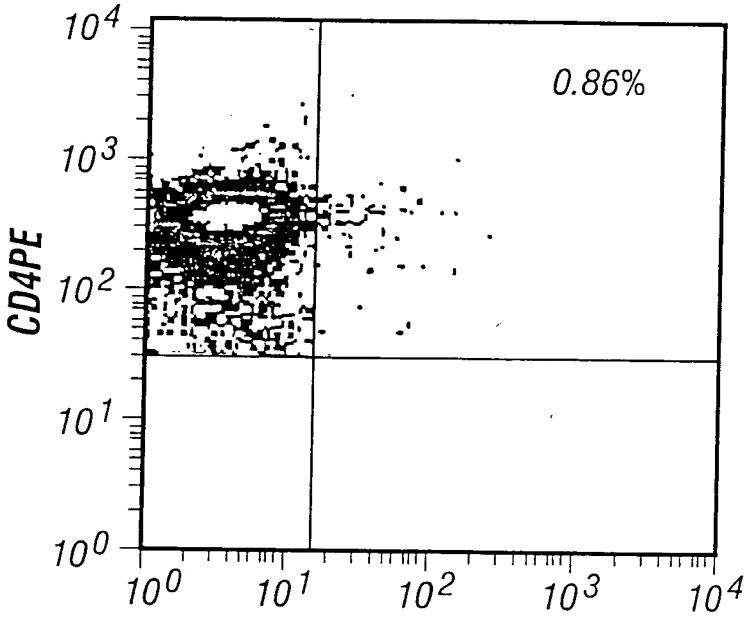


FIG. 38B

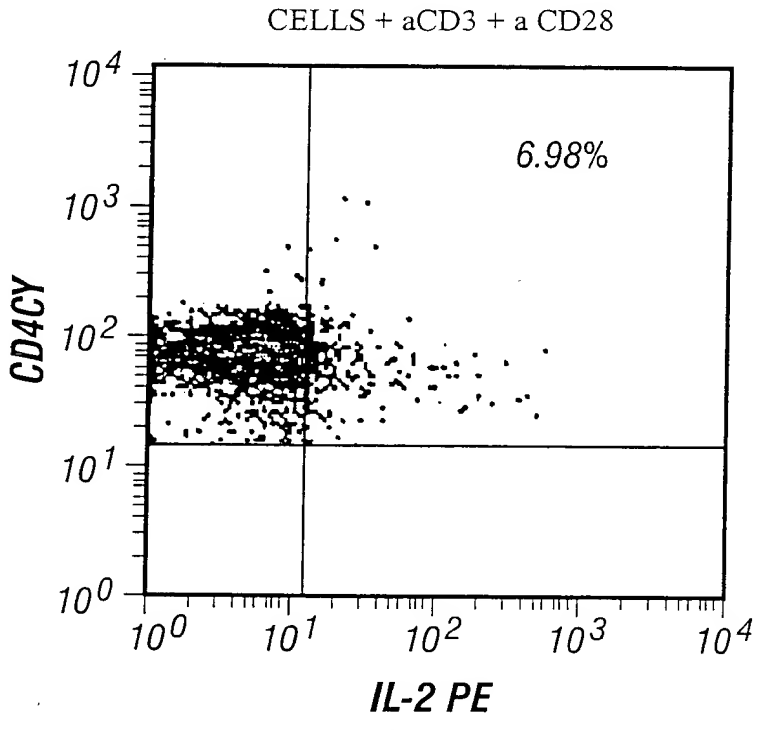


FIG. 39A

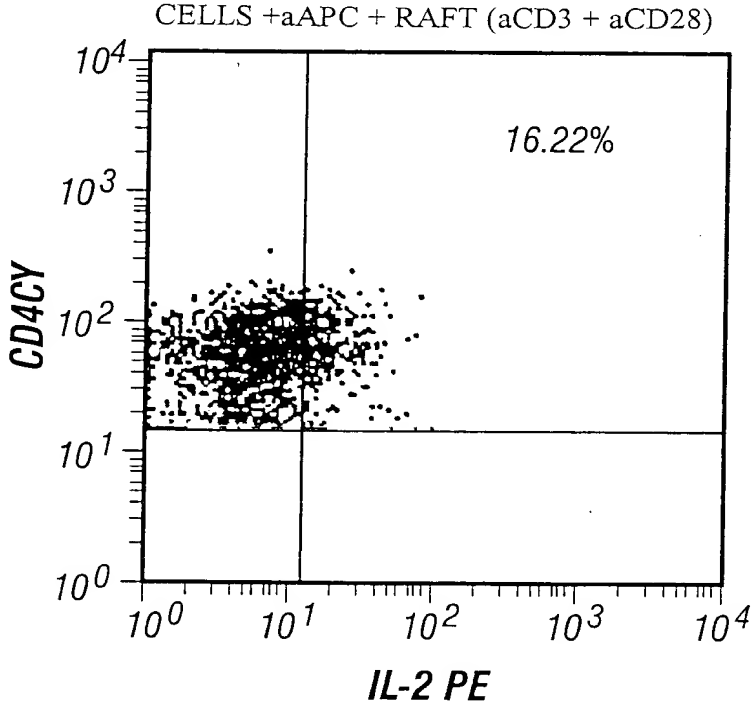


FIG. 39B

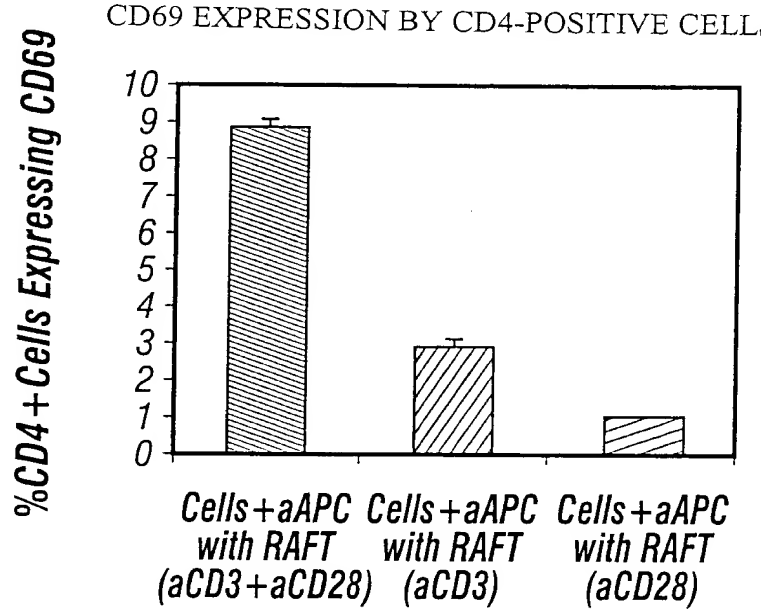

CD69 EXPRESSION BY CD4-POSITIVE CELLS
%CD4+Cells Expressing CD69
10
9
8
7
6
5
4
3
2
1
0
Cells+aAPC with RAFT (aCD3+aCD28)
Cells+aAPC with RAFT (aCD3)
Cells+aAPC with RAFT (aCD28)

FIG. 40

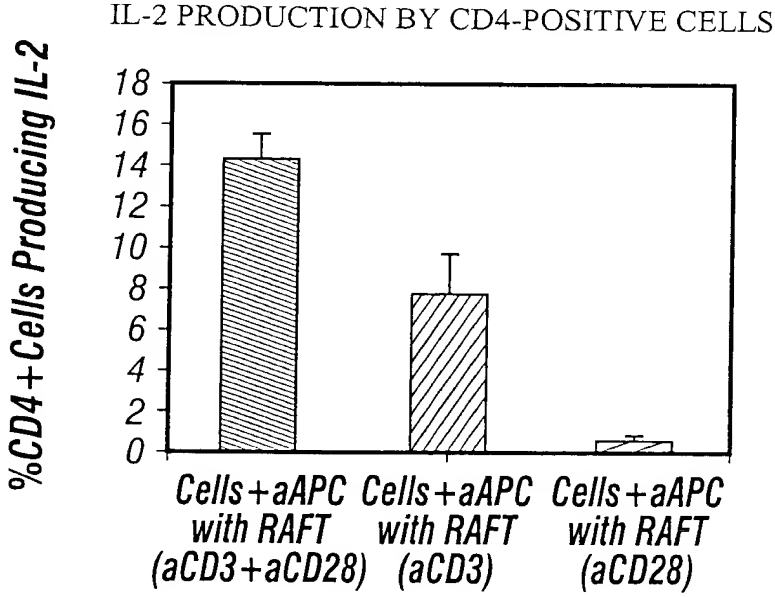

IL-2 PRODUCTION BY CD4-POSITIVE CELLS
%CD4+Cells Producing IL-2
18
16
14
12
10
8
6
4
2
0
Cells+aAPC with RAFT (aCD3+aCD28)
Cells+aAPC with RAFT (aCD3)
Cells+aAPC with RAFT (aCD28)

FIG. 41

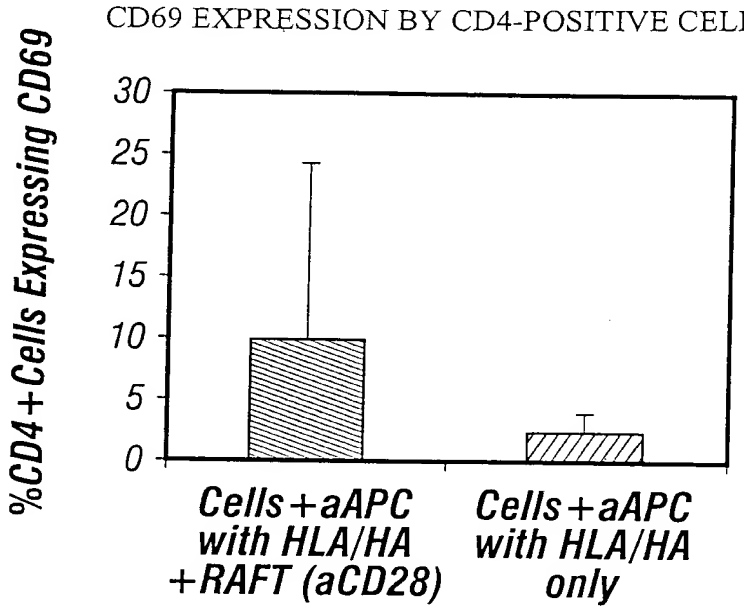

CD69 EXPRESSION BY CD4-POSITIVE CELLS
%CD4+Cells Expressing CD69
30
25
20
15
10
5
0
Cells+aAPC with HLA/HA +RAFT (aCD28)
Cells+aAPC with HLA/HA only

FIG. 42

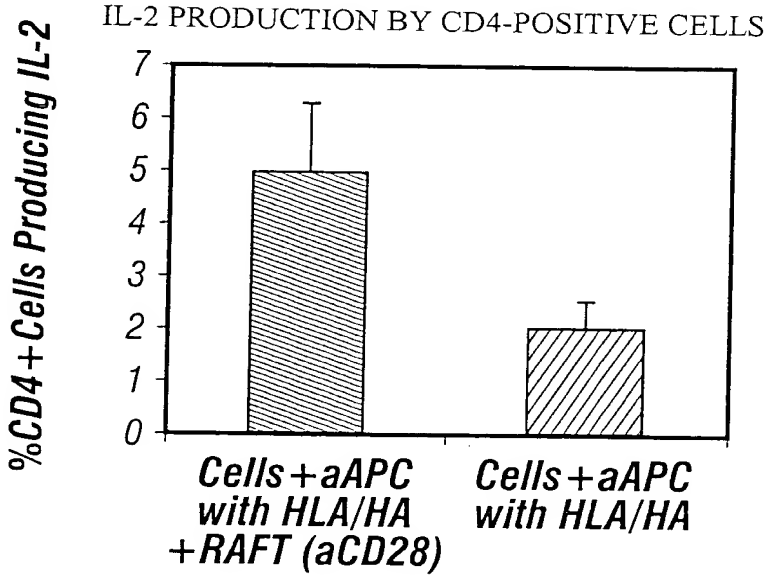

IL-2 PRODUCTION BY CD4-POSITIVE CELLS
%CD4+Cells Producing IL-2
7
6
5
4
3
2
1
0
Cells+aAPC with HLA/HA +RAFT (aCD28)
Cells+aAPC with HLA/HA

FIG. 43